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COTTON

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MAY 1926

Typical Card Main Cylinder Box
Typical Card Licker-in Box
Typical Spinning Frame Box
Typical Slasher Large Cylinder Box
Typical Warper Measuring Roll Box
Single Ball Bearing Hanger Box, countershaft type.
Fafnir Ball Bearing Loose Pulley.
Double Ball Bearing Hanger Box for line shafting
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The new dull finishes can be easily produced

BRIGHT days lie just ahead for the dull-finish fabric. Wearied of over-much luster, the public is now veering, as usual, toward the other extreme. It wants richness still, but a richness that is more restrained, more subtle.

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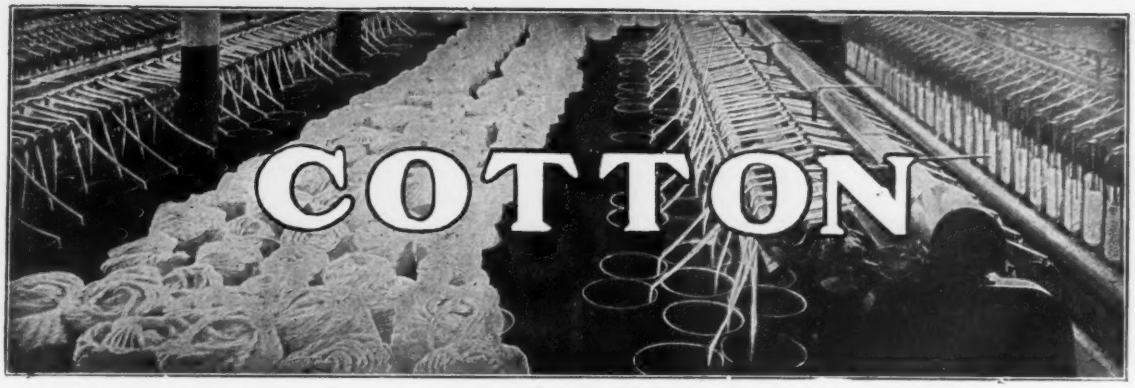


May, Nineteen-Twenty-Six

Crowding Consumption.

It is estimated that the American buying public owes today around $5,000,000,000 for articles sold at retail on the installment plan. These do not include things such as houses, which represent investments. Nor, as a rule, do they include necessaries, like common wearing apparel or food. In large part they are luxury products. In much part also they are comparatively new products.

Installment selling and buying is thoroughly legitimate and performs a useful economic service. It is merely an anticipation of buying power, and tends probably in the long run to speed up the realizing of that power.

When carried to excess, the method involves certain dangers; for example, it would intensify a wave of general business depression. It also probably does injury in some directions, notably those of the more stable products, which are not easily amenable to this form of stimulated distribution. One who is paying a large proportion of one's monthly income on an automobile or radio has good reason for keeping a critical eye on the grocery bill or clothes bill.

Expansion of installment selling and buying is proof, however, of the power of this country to produce out of ratio even of need. This production itself is evidence of the ultimate power to buy. Those who have to do with that of the staples, which adhere to the old form of distribution, should wisely stand up, in some way, for their own, and not let their products, which are the bed-rock of industry, be made to suffer by the high-pressure tactics used by the producers of the semi-luxuries.

The Other Americas.

In welcoming a large group of visiting Latin-American journalists to this country early in April, President Coolidge used the carrying power of his high office and prestige to bring to general notice some facts concerning the countries and their peoples to the south of us. He flattered the guests by talking to them about themselves and their own lands, but his main purpose, no doubt, was to inform the people of this country regarding Latin America.

The average American's indifference towards knowledge of all foreign lands is profound, but it becomes particularly acute when only the other Americas are considered. We are prone to think of all Latin America in terms of political revolution and confusion and of hybrid peoples largely alike. Several Latin American governments are remarkably stable, and, in all, bearing a measure of common history and derivation, the peoples of those countries are as diverse as are those of Europe. Mexico and Argentine are as far removed from each other, barring the item of language, as each of them is removed from the United States.

Towards all the Latin American countries we have a relationship of subtle delicacy and high importance. This is envisaged in the Monroe Doctrine, which makes the United States the protector, if not the obligated care-taker of the greater part of this hemisphere. Of all our foreign relationships, this one probably is most significant; it is one that might at any time bring on war.

The relationship is accentuated by our growing financial concerns in those vast regions which are classed as Latin America. Authorities estimate that around $4,000,000,000 of United States capital is now invested in those regions. Our trade with them amounts to around $2,000,000,000 a year. Yet our investments there do not equal those still held by Europeans, and our trade amounts to only about one-fifth of all of a foreign kind done by those peoples.

However, investments of United States capital there are bound to grow. The same is true of trade. While we haven't held all of the gains made there during the World War, our present trade with Latin America is much greater than it was in pre-war times, and is again moving upward. From Latin America we are getting most of our tropical products, excepting rubber, and even rubber may again come from there in preponderant quantities. And a noteworthy aspect of international trade is that due to increasing consumption of things that cannot be produced successfully outside the tropics. We also get large quantities of minerals from Latin America, notably copper, manganese and nitrates.

All Latin America is virtually without coal, of which our supplies are unlimited. Those countries likewise have scarcely any manufactures; their peoples as a whole are the most dependent in all the world on foreign trade. There are, all told, about 80,000,000 of them, and their natural resources are, of their kind, unlimited.

Latin America is most auspiciously situated for receiving the greater part of the "overflow" of capital, enterprise and energy which is to be consequent upon the stage of development reached in this country. Why shouldn't these go into other regions of this hemisphere, particularly into those parts where our political concerns are so profound?

They do go into Canada, with which there is no political bond, to an extent that makes the dominion, in economic respects, a part of the United States.

Why shouldn't patriotism envisage one's continent and one's hemisphere, particularly when these are bound up, as are our continent and our hemisphere, by many common interests?

In this case it doesn't. Between the people of the United States and those of Latin America there is a wider gulf of ignorance, common indifference and misunderstanding than between either of these groups and the peoples of Europe or Asia.

Much of this owes to the language obstacle and to cultural and ethnological disparities. Yet these constitute no insuperable walls between us and other peoples who are even further removed from us in those respects than are the American Latins.

The language difficulty might be easily overcome. For Spanish is spoken by all the American Latins, except the Brazilians, who use the close kindred Portuguese.

And of all the spoken and written languages, Spanish is the easiest for the novice to learn and use, and, withal, is the most charming of tongues. It is curious that it has not been adopted as an auxiliary language in this country.

Since the Spanish-American war there have been recurring revivals of interest in Spanish as a language. It was noteworthy, however, that the visiting Latin American journalists were much more familiar with English than the run of their entertainers were with Spanish.

Language is the open sesame to the bond of interest and mutuality that many forces are endeavoring to forge between the people of the United States and those of the countries south of us on this hemisphere. Until it is commonly so recognized these peoples are likely to remain strangers to us and we to them, no matter how many exchanges of visiting delegations are made, or how much general information is pressed upon the public.

For what is needed most is quickened desire for information concerning Latin America, not on the part alone of those concerned with such factors as ones of trade, but among the body of folk in this country. And that might be best prompted by dealing with the tap-root of the problem, which is language.

Why not make Spanish a compulsory study in the high schools of the United States, with perhaps some regular attention to the subject in the higher grades of the grammar schools? The cultural benefits might justify this. In the end, the practical benefits might more than justify it.

Amazing Mazes of the Law.

When a Federal district attorney declares before a Congressional committee that, to give jury trial to all the persons arrested in his jurisdiction for a single offense—and one that is rated as a misdemeanor—would call for the daily sitting of 75 judges where now there is only one, the thought that something seriously is wrong somewhere becomes inescapable. With this flooding of the courts on the score of a single "small" offense, what can be expected to happen to many serious offenders, and how much time and thought can judges and juries give to cases arising out of the civil law? Shall the 75 judges, and the other multiplied funtionaries, be set up to deal with the misdemeanors, or will steps be taken to give those already in existence opportunity to handle the more serious business that comes before them?

The problem of the courts is becoming one of exceeding importance to the legitimate business world. Involved in it is the problem of the law itself. The slowness of the courts, with the growing volume and complications of the law, is making "legal departments" as common and as necessary adjuncts as are bookkeeping ones.

The multiplying of statutes seems to offer no remedy. What probably is needed is a fundamental revision of law and of court practice. Can the profession of law be depended on to bring that about? Perhaps, but history doesn't so indicate.

Subsidizing Silver.

In 1918 German propagandists gave Great Britain much trouble by causing to be circulated in India a propaganda against paper money that was issued there by the colonial administration. Reverting to a traditional liking of metal coin, the Hindus refused to accept mere tokens of value. Our Government at the time had on hand a large accumulation of silver bullion and coinage that was lying idle in the Treasury. A shipment of 200,000,000 ounces was sent to India and saved the situation there. But before Congress would permit it to go it was decreed that the Government should engage to replace the metal by purchases made from American producers at $1 an ounce.

For some time after the war silver sold for more than $1 an ounce. But when it went below that figure, the Government began to buy at the fixed price, thus holding the American quotation far above the world one for a long time. The operation produced a bonus of around $50,000,000 for American producers, aside from what came from higher prices, thus sustained, for silver which meantime entered the trades. Now spokesmen for the miners are asking that additional purchase of 14,500,000 ounces be made at the same fixed price, which would yield the miners an additional bonus of about $5,000,000. The Government has no use for the metal, which merely would be withdrawn from the market to lie idle in vaults. In the intricacies of finance and currency there may be some reason for indemnifying an industry for a war operation with which it had nothing to do. If so, it is too subtle for comprehension by the ordinary mind. The Treasury opposes the additional indemnity, rating it candidly as a subsidy. The first one was little more.

The Cost of the Cities.

The tax cost due to living or doing business in the average American city becomes more and more burdensome—a fact which no doubt accounts in part for the growing trend of certain industries away from at least the big cities. Local government in the 248 American cities of 30,000 or more population cost, in 1924, nearly two billions of dollars, or more than half as much as the entire operations of the Federal establishment. The best thing that can be said for these growing costs is that much of it owes to expansions of city government activities in "humane" spheres, notably that of education. Schools have absorbed the biggest proportion of increases in recent years. Also, it might be said, city governments, as a rule, have not been invading new spheres, as the State and Federal government has

been doing. There has been no notable expansion in the matter even of municipal operation of public service agencies, like street railways.

Governments of these 248 cities noted expended, in 1924, the sum of $45.32 for every man, woman and child making up their populations. In 1917 the cities of that class spent only $24.70 per capita. Some, but by no means all, of the increase, which has occurred annually for at least the last 25 years, owes to the changed status of the dollar. Some of the big increase of recent years owes to construction put off during the war and to needs brought about by abnormal growths in population.

Federal census bureau statistics show that the larger the city the larger, as a rule, is the per capita cost of its governmental operations. In those of 500,000 or more population the per capita cost in 1924 averaged $54.20, while in ones of 30,000 to 50,000 people the average was $33.73 only.

These statistics put forth every year show that the American city government rarely pays its own way out of taxes or kindred revenues. Virtually all of them invariably balance their budgets with borrowed funds. Hence the volume of municipal indebtedness is always on the increase, and now totals for all the cities covered by mass statistics more than twice the cost of annual operations. The per capita city debt in 1917 was $77.78; it rose to $105.71 by 1924, and is still moving upward.

Warp Sizing

BY PAUL SEYDEL.

Chemicals.

Previous articles related to the subject of warp sizing from different viewpoints. First, a few remarks were made concerning the slasher room and its equipment. Due to lack of space, very considerable details could not be elaborated, taking for granted that the reader knows the subject pretty well. The second article discussed briefly the different starches, the third gums, and the fourth fats. Each group is very important, and most gratifying results can be obtained by the judicious use of at least two and preferably more ingredients of each group, but to complete the size, chemicals are needed. These add to the size paste, besides adhesive agglutinant, softening and lubricating qualities, a number of properties of considerable importance.

We shall consider first the usefulness of the available deliquescents or agents attracting moisture essential to protect the warp against excessive drying through the action of heat on the slasher drum. A warp protected by a deliquescent will not bake as readily as one not so protected. The baking, of course, makes it so brittle that no amount of moisture added by the best humidifiers will bring life back to it, for it is not enough to add tensile strength to the warp; we must also make it elastic. Tensile strength without elasticity will not protect a warp satisfactorily, because the longitudinal pull is only one of the strains a warp must resist. Against the bending and the friction caused by the shuttle, the warp must possess elasticity and pliability, and these are quite as important as mere tensile strength. There is no good way of measuring elasticity, and this is best shown by production figures.

I have carefully investigated the specific reason for as well as the action of each ingredient that has been advocated for use in sizing, and among them the deliquescents have been most misunderstood, as well as misrepresented.

Chlorides have been subjected to exaggerated and undeserved criticism of the wildest nature, and particularly magnesium chloride has been represented as the arch criminal. It is hardly necessary to defend magnesium chloride, because, although it has been and still is being used in considerable quantities abroad, it is not used extensively in this country. There are among other chlorides, some with more stability, and especially cheaper ones, that have all the qualities and none of the alleged dangers. Chlorides have been accused by thoughtless writers, and especially by dodgers of responsibility, with the crime of disassociating at high temperature and of tendering the warp. Any temperature that will disassociate the deliquescent chlorides used and mixed with starch, with which they form a sort of combination, will long before have ruined the warp, anyway, and the little additional damage the chloride could do does not need to be considered.

In every instance of a cloth submitted to me where the warp was tendered and the filling was not, the cause has always finally been traced to other agents, and often in the absence of chlorides.

Although it is quite frequent to see loaded warps abroad containing considerable amounts of chloride, the writer has never tested a warp in this country which contained even one-tenth of the amount of chlorides commonly used in Europe. This amounts to a negligible potential content of hydrochloric acid. In order to liberate even a noticeable fraction of this hydrochloric acid, a temperature is required that would ruin the cotton long before any considerable trace of hydrochloric acid could be produced. Any thoughtful person with the most rudimentary knowledge of chemistry could not seriously contend that there is the slightest danger from this source.

Cotton is subjected to much more strenuous chemical treatment in bleaching and dyeing than the small amount of chloride used in sizing could possibly subject it to.

Walter A. Nivling, on pages 67 and 68 of his book of starches, after stating that deliquescents added strength and suppleness to every size formula and are essential ingredients, goes on to say: "The statement that calcium and zinc chlorides are harmful has been passed without justification. This is unfortunate because it may discourage the use of very useful substances."

The writer fully agrees with Mr. Nivling. Certainly it is to be regretted that careless statements are often made by people who have given the matter neither study nor consideration and create distrust and suspicion for those who really know their business through years of painstaking research and continual experience. But the literature is full of careless statements, and it takes a wise man to choose the right from the wrong. After all, intelligent experience alone can satisfactorily teach the truth.

Magnesium Chloride ($Mg\ Cl_2$). Needle-shaped crystals containing 51 per cent of water of crystallization. Magnesium chloride exists in many springs and in sea water. It occurs in large quantities in the mineral called carnallite. It has been called antiseptic by some writers, but this is not accurate. It has no antiseptic value; it is simply a

deliquescent. It has been used in considerable quantities, especially as a deliquescent in conjunction with weighting materials such as china clay.

Calcium Chloride ($Ca\ Cl_2$). Calcium chloride is found in the water of nearly all springs and rivers, and consequently in sea water. Its main source is as a by-product of the manufacture of sodium carbonate Solvay process. Commercial calcium chloride in air saturated with moisture will absorb more than its own weight of water, and will retard very considerably the evaporation of water of its solutions.

Zinc Chloride ($Zn\ Cl_2$). Zinc chloride is obtained by chemical treatment of zinc scraps. The crude solution is treated with sodium carbonate and mixed with bleaching powder to precipitate iron and manganese. The clear solution is siphoned off and boiled down in enameled iron pots. The evaporation is continued until a temperature of nearly 470 degrees Fahrenheit is reached. Before the fused mass solidifies, it is run into steel drums which are immediately sealed. It is interesting to observe that a temperature of about 450 to 500 degrees Fahrenheit is used to obtain fusion without decomposition, and yet some writers claim that hydrochloric acid is produced during singeing in sufficient quantities to injure the cloth. If the whole cloth were heated above 500 degrees Fahrenheit in the singeing process, the cloth would be ruined anyway.

Zinc chloride is a white or grayish white mass or powder with a specific gravity of 2.9. It is highly hygroscopic and deliquescent, an excellent permanent antiseptic, germicide, disinfectant and deodorant.

Glycerin, Glycerol, Glycyl Alcohol [$C_3\ H_5\ (OH)_3$]. A colorless deliquescent liquid boiling at 290 degrees C. Should burn completely upon incineration and leave no ashes. Fatty oils and fats are glycerides, the result of combination of fatty acids and glycerin. Through saponification involving the addition of water, the glycerides yield glycerin, a trivalent alcohol capable of combining with three radicles of fatty acids. It is a by-product of soap factories. At ordinary temperature, glycerin does not volatilise. In a solution of glycerin and water, at the boiling point of water, a good deal is carried off by water vapors. The chief objections to glycerin are: The high cost compared to its comparatively low efficiency and the fact that by increasing the surface tensions of a liquid, it causes a colloidal mixture to be very apt to foam excessively.

A Disinfectant Germicide or Preservative must be used to kill or prevent the development of lower organisms which act injuriously on the warp or fabric. Disinfectants are germicides; that is, they kill low organisms. Antiseptics may only retard or prevent the growth of germs. The choice of a protective agent depends on safety, convenience, economy and permanent value. Oxygen peroxide, formaldehyde and strictly organic antiseptics are not permanent; that is, they evaporate, and, although they may sterilize the warp temporarily, most of their effect is lost either in the size at the kettle, if sufficient steam is allowed to escape carrying the volatile preservative, or at least on the slasher drum, where they are carried away with the very considerable amount of water that evaporates from the drying warp.

Disinfectants, preservatives or antiseptics are used against mildew. Mildew is a rather indefinite term applied to a variety of vegetable growths named fungi. There are a large number of varieties, differing in form, size, color, etc. Its presence on cloth is due to excessive moisture and the absence of sufficient protectives. Percy Bean says, on page 619 in his book on sizing practice, "There is no doubt that the manufacturer is responsible for the matter of liability, when the cloth has mildewed, if it does not contain sufficient zinc chloride." This, of course, is provided it is not subject to unreasonable treatment, such as undue exposure to dampness. Spores of mildew are floating in the air in considerable quantities, and it is sufficient for their development to find a resting place with conditions favorable to their growth. Starch paste, a wet sized yarn, are excellent fields for their development. It takes nearly two weeks for the species of mildew attacking warps to develop sufficiently to be noticed.

Phenol, Carbolic Acid ($C_6\ H_5\ OH$). White crystals with a melting point of 42 degrees C. Powerful objectionable odor. Phenol boils at 180 degrees C., is a powerful antiseptic, but is volatile and cannot be considered permanent.

Cresylic Acid [$C_6\ H_4\ (CH_3)\ OH$]. Is a liquid with a strong characteristic odor, being a mixture of meta-ortho and para-cresol. The boiling point is between 185 and 203 degrees C. This is less soluble in water than carbolic acid, and a more powerful antiseptic. Redeal gives as co-efficient 3.7 compared to phenol. Cresylic acid has the same virtues and objections as phenol.

Salicylic Acid [$C_6\ H_4\ (OH)\ COOH$] occurs in many plants, especially a methylester in the essence of wintergreen, traces of which exist in most wines. Made on a commercial scale from coal tar intermediates. Slender white crystals, used as a preservative and as a basis of azo dyes. Iron salts produce an intense coloration, making it inadvisable to use in white fabrics. Although it has very good preservative qualities, its vapor tension is too considerable to make its use advisable where a permanent antiseptic is desired if the material is exposed to either heat, moisture or air.

Benzoic Acid ($C_6\ H_5\ COOH$) is an organic acid and occurs in gums and fruits. Produced synthetically from Toluol, a coal tar derivative, it is volatile even at 100 degrees C., although it boils only at 249 degrees C. It sublimes readily into beautiful lustrous leaflets. It is a powerful antiseptic, but shares with other organic antiseptics a tendency to be too readily carried off by steam for use in sizing.

Formaldehyde ($CH_2\ O$) has also been advocated. It is readily decomposed by heat and quite volatile. It is a gas of characteristic odor of which water dissolves up to 52 percent. Although a powerful antiseptic, it is very objectionable in the slasher room, as it is extremely volatile and its presence disturbs operators. It is of no practical value as a sizing ingredient.

Boric Acid ($BO_3\ H_3$). This acid exhibits itself as white flakes, unctuous to the touch. It is powerful as restraining bacteria, but it must be remembered that 100 gallons of water evaporated as steam carries 2.8 pounds of boric acid.

Borax [$Na_2\ B_4\ O_7\ (10H_2O)$]. Borax is found on shores of salt lakes in Tibet and California. Borax forms large white transparent crystals, soluble in water. It is only mildly antiseptic.

Zinc Sulphate ($Zn\ S\ O_4$). White crystals; has strong metallic taste; freely soluble in water; is also antiseptic, but not equal to zinc chloride, and especially lacks the hygroscopic value of the chloride.

Zinc Chloride. This salt, already mentioned, besides being hygroscopic is a very powerful, useful and permanent antiseptic, used very successfully and extensively in sizing and finishing.

Some Copper Salts have a powerful co-efficient as antiseptics and germicides. Their color and their catalytic action, however, makes them undesirable under many conditions.

From the foregoing it may be concluded that both for deliquescent or germicidal value, inorganic compounds are superior in many ways to organic compounds, especially when permanency is concerned, and certainly fabrics must be protected for long periods and in spite of temperatures which make organic compounds inadvisable. A number of chemicals are used for other purposes, some for their action on starch, to which they impart adhesiveness, elasticity, agglutinant virtues, etc. Some are used for stripping, and some for weighting; these subjects will be considered in subsequent articles.

(This is the fifth of a series of articles on "Warp Sizing," by Mr. Seydel. The next will appear in an early issue.—The Editor.)

The Finishing of Fast Dyed Tan Warp Yarn for Awning Stripes

BY F. A. ALTER

On coming out of the last bath in the dyeing machine, of the type described and sketched in the previous article, on the "Dyeing of Fast Tans for Awning Stripes," the yarn is taken to the drying apparatus, which in most cases is a set of horizontal or vertical steel cylinders of the improved type, and which are tinned over for greater smoothness of surface, as well as for the prevention of resultant shaded effects when these cylinders are made from copper and untinned.

Here they run onto the dryers, and this operation should be carefully watched, to see that the heat at which the yarn is run is not excessive and the amount of steam in the cylinders is not over eight pounds pressure, so as to leave the yarn in a fairly dry state when coming from the dryer, and yet not in a brittle or brick condition, which is liable to occur in the case where it is dried to an excessive state of hardness. The speed also should be of such a rate as to insure this soft feeling effect, and then when the yarn has been thus put through this process, it is ready for the further process of finishing in preparation for the loom.

Since this yarn, thus dyed, has given severe troubles with costly results in the looms in several plants throughout the textile industry, the foregoing facts should be well considered before going into the matter of quantity production, in order that the usually common trouble of hard-feeling yarns, with that bricky harshness which is so common in the ordinarily dyed iron tan yarns, may not be a defective factor in the weaving of these yarns into the finished awning stripe goods. It is, then ,an item of considerable importance before sizing this yarn, thus dyed, to have this condition in the yarn present, after it has been oiled in the last bath of the dyeing operation previous to drying, in order to hold a slight amount of the oil after drying. Thus, with a very slight amount of moisture still in the yarn, which should be just enough to keep it from being brittle or harsh, it is ready to be beamed and then to be sized.

There are certain methods of doing this so-called simple operation known to the textile trade as slashing or sizing, and, as a rule, yarns of this type are just given a general or ordinary stretching, and run onto loom beams, and they are then supposed to be in readiness for the weaver, who in turn is expected under any condition, almost, to produce a piece of awning goods of a quality which is usually not of the first water, due, more often than not, to improper preparation before arriving at the loom. This is due more or less to the fact that in most cases such preparation is considered good enough done on almost any method at all so long as the warps are starched in some way to make it possible to weave them, and get out some kind of a half decent looking piece of goods as cheaply as possible. And right here is just the play at which many a concern manufacturing this line of cotton goods has overlooked a very important point, as regards the best quality of this yarn for the purpose of making it a more weavable one for the operator to put through the loom successfully.

It is in the proper sizing that many of the bad features are eliminated, and a very good formula for treating the warps in the slasher is: 15¾ pounds of a good grade of tallow; 5 pounds of a good grade of paraffin wax, and 49 pounds of starch.

These ingredients should be very carefully dissolved together in a copper-jacketed kettle, large enough to hold about 375 gallons of water, and by using 350 gallons of water for the amounts given a good solution may be obtained, of a consistency which, when it is free of lumps and foreign matter, will give very satisfactory results, and produce a yarn that will weave with very little, if any, difficulty whatsoever. This formula gives to the warps a good sizing, and the amount of wax contained therein is sufficient to lubricate it to just an extent that will facilitate good weaving, with the result that the goods coming from the loom will finish properly, and when the full process of finishing in the piece is completed, will bring the right price in the market.

One very important feature in the manufacture of the best awning stripe goods made by the best manufacturers of this line of cotton materials lies in the filling used. The writer has had several inquiries as to what the best kind of dyed yarn would be to use for this particular purpose, and from past experiences with this question, it has been found that an even spun yarn, of a rather soft twist, dyed with an after-treated sulphide color, has been found to be very fast as to light exposure tests; and also it is, if dyed correctly, of a good soft quality, and does not cause pulled selvages on the woven goods. It is also easily and readily quilled, and, while in the shuttle, runs off this latter unit to the last end almost in every case, where the bobbins are of the right type and in good condition.

In the case of the iron dyed tan warps, this manner of dyeing the filling yarn is a very considerable improvement over light shades of iron dyed yarns for filling, which are more often than not harsh and stiff, and do not run

off the shuttle bobbin very well, and usually with considerable loss of filling yarn, or the direct color dyed yarns, which are soft enough, but which do not stand up under exposure to the elements.

Thus, with a well-finished warp yarn of this type, and a fast dyed and soft filling yarn, ready for the loom, the resulting piece of awning stripe goods coming from the weaving department should be of the type which, through its better quality appearance, though not exceedingly expensive producing cost, appeals to those dealing in the better goods of this type.

Carding Division Meets at Spartanburg

The beginnings of a statistical tabulation as the basis of standardization work was put into operation at the meeting of the Carding Division of the Southern Textile Association, held at the Hotel Franklin, Spartanburg, S. C., on Friday, April 2nd. Secretary F. Gordon Cobb and Carding Chairman J. O. Corn had in mind that if records of what the different mills are doing in various departments of the mill, so far as speeds, settings, drafts, twists, etc., could be secured, this could be made the first step toward the determination of standards of mill practice.

Accordingly, with the largest attendance of record at a sectional meeting, this work was begun, and COTTON is presenting in this story a complete record of the various tabulations made, in detail, for the interest of its readers from the standpoint of comparison and information.

The meeting was opened by Oscar D. Grimes, of Athens, Ga., president of the Association, who called upon T. A. Hightower manager, Kendall Mills, Inc., Edgefield, S. C., for the invocation. After the prayer, Secretary Cobb announced that plans have been closed for holding the semi-annual meeting of the Association at the Hotel Tybee, Tybee Beach, Savannah, Ga., on Friday and Saturday, July 16th and 17th. Mr. Cobb stated that the date was later than usual for the summer meeting since Tybee is a beach resort, and ideal weather for such an occasion was desired.

Leading up to the purpose of the meeting with an inspirational talk, Mr. Cobb turned the affair over to Mr. Corn, as chairman of the Carding Division.

Mr. Corn explained that in preparation for the meeting, he had sent out, to a large number of mills, a rather extensive questionnaire, covering in minute detail various points on carding department practice, from opening through to speeders, with a view to compiling the answers and creating a basis for discussion. Since the response was very small, he announced that he desired to secure this information from those present at the meeting. Because the different range of numbers determines practice to a large extent, he divided the meeting into three sections—one section consisting of those men spinning numbers under 30s, one containing those spinning 30s to 40s; and the third comprised of those making numbers finer than 40s.

Mr. Corn himself was in charge of the group making 30s to 40s. Marshall Dilling, superintendent, A. M. Smyre Manufacturing Company, Gastonia, N. C., and former president and chairman of the carding division of the Association, had charge of the group above 40s, and P. A. Smith, superintendent, cotton department, Pacific Mills, Lyman, S. C., was in charge of those on the coarser yarns.

The results of the three tabulations are given in the succeeding paragraphs. It is thought that a careful study of them will be of interest. Although dealing with the various subjects in a very general manner, they do give an insight into practices.

In reporting the results of the tabulations for each of the three groups into which the meeting was divided, according to the numbers spun, it would be impracticable to present the compiled information in table form; furthermore, the variances in practice can be better explained in a narrative report, and accordingly, the figures will be given in this form.

The questionnaire used in all of the three divisions was the same, although the three chairmen naturally brought out different angles of some questions, some of these differences being due to the different numbers of yarn. An endeavor will be made to make these as clear as possible.

Tabulation for Numbers Below 30s.

Opening Room.

Under this heading, the first subject taken up was the "Method of Preparing Mix," and under this head, the first information procured pertained to the "Number of Bales Used in a Mix?" According to the responses made in this group, two mills use six bales in a mix; one mill, eight bales; two mills, 10 bales; five mills, 12 bales; one mill, 14 bales; one mill, 16 bales; one mill, 18 bales; four mills, 20 bales; three mills, 24 bales; one mill, 22 bales; one mill, 28 bales; and five mills reported opening more than 30 bales at a time.

As to the "Manner of Feeding," ten mills in the group reported the use of the hopper system; while 18 others use the apron method. Only one mill represented uses ageing bins.

Vertical openers and horizontal cleaners were next taken up. It was brought out that none of the mills represented uses the horizontal cleaner singly; one uses this machine in tandem with a vertical opener; seven mills have vertical openers single, and seven use the vertical openers in tandem.

Thirteen men in this group prefer the use of grid bars in vertical openers; while six others indicate a choice of the perforated screen.

One man reported the removal of .6 of one per cent waste in the horizontal cleaner; and another man, using the vertical opener with perforated screen, gave a figure of .5 per cent for this machine.

Practice varied as to the method for re-working returned waste. There were 19 who said they use a waste machine to grind it before returning it; while 11 men said they return it into the hopper or on the apron. As to a "safe proportion or percent," one man said 2 per cent; two men said 3 per cent; four men said 4 per cent; and 5 per cent was the opinion of five men.

The production of the horizontal cleaner and vertical opener for a 10-hour day was next taken up. For the horizontal cleaner, one man said he puts through 10,000 pounds; another said 7,000 and another 11,000 and another 6,000. Two men run 8,000 pounds, and one man reported more than 12,000 pounds. For the vertical opener, one man, apparently at variance with the rest, puts through 26,000 pounds per day; two men 16,000; one man, 14,000; three men 12,000; two men 11,000; two men 5,000; two

men 8,000; while the production of 6,000, 7,000, 9,000 and 10,000 was each reported by one man.

As to humidification in opener rooms, none in this group reported the use of the system at this point.

Picker Room.

Going next into the picker room, it developed that in this group, 12 mills use three processes of picking, and 15 mills use two processes; also that out of those answering the question, 12 have the single section breaker, and 8 the double section. Three men said they are using eveners on the breaker pickers. One man using the double section picker, uses blade beaters in each section, while another member said he has substituted the Kirschner beater in the first section.

The next question was "How often should pickers be torn down for cleaning and inspection?" and the answers were as follows: Every six weeks, 1; every four weeks, 12; every four months, 1; every six months, 9; once a year, 1.

As to the method of dividing the laps on the picker aprons, the majority were in favor of running two ½-full and two full, as 25 men reported this practice, while two were in favor of running one ¼-full, one ½-full, one ¾-full, and one full.

One man uses the feed table method, and eleven return lap and sliver waste to the hopper or apron, it developed in the answers to the next question, which was on this subject.

Beater speeds were next taken up. For the breaker, one man reported a speed of 500 r.p.m. for a Kirschner beater, while another with this type beater uses 600 r.p.m. on this machine. For two-blade beaters in the breaker, six men use 900 r.p.m.; two men 1,100 r.p.m.; four men 1,200 r.p.m.; and one man 1,400 r.p.m. For three-blade beaters in the breaker, one man runs 700 r.p.m.; two men each 800 and 900 and 1,000 r.p.m.; and one man went as high as 1,100 r.p.m. On the intermediate (or second beater of breaker), one man reported using a Kirschner type, at a speed of 900 r.p.m.; the remainder have the two-blade beater here, and reported speeds as follows: four men, 1,000 r.p.m.; two men, 1,100 r.p.m.; two men, 1,200 r.p.m.; and one man up to 1,300 r.p.m. On the finisher, all reporting use the Kirschner type with speeds as follows: four men, 800 r.p.m.; ten men, 900 r.p.m.; six men, 1,000 r.p.m.; while one man uses as much as 1,200 r.p.m. here.

The production of pickers in yards per minute was next asked. One man reported 4 yards per minute; three men, 5 yards per minute; two men 6 yards per minute; four men, 7 yards per minute; and one man 8 yards per minute—on the breaker. Intermediate picker productions were as follows: one man, 4 yards per minute; one man, 7 yards per minute; and three men, 5 yards per minute. While on the finisher, four men get 5½ yards per minute; one man 6 and one man 7 and one man 4½ yards per minute; and two men 4 yards per minute.

As to humidification in the picker room, 18 do not use it, and two men reported that they do, one stating he keeps the relative humidity to 65 per cent, the other at 60 per cent.

Waste percentages on breaker pickers were next asked for, bringing two answers, one of 2½ per cent and one of 3½ per cent.

The last picking question referred to the draft used on intermediate and finisher pickers. On the intermediate, three men present use 4½ draft; one man a draft of 5. For the finisher, six reported a draft of 4; 12 use 4½; and two use 5 draft.

Cards.

The questionnaire on carding called first for weights of card sliver with the following responses: On 40-inch card, two men, 40-grain; three men, 45-grain; six men, 50 grain; four men, 55-grain; five men, 60-grain; three men, 65-grain; two men, 70 grain; and one man, 75-grain. On 45-inch card, one man, 40-grain; three men, 45-grain; two men, 50 grain; two men 55-grain.

Cylinder speeds are held pretty close to standard, according to the answers on this point. With 40-inch cards, only one man was as low as 155 r.p.m.; three men run 160 r.p.m.; while 18 reported a speed of 165 r.p.m.; and on the 45-inch card, the four men reporting gave the speed of 165 r.p.m.

Speeds on 27-inch doffers showed more of a variation. One man said 7 r.p.m., another 7½ r.p.m., another 9 r.p.m., another 10½ r.p.m.; another 11½ r.p.m.; while two others use 10 r.p.m.; two others, 12 r.p.m.; two more 12½ r.p.m.; and four use 11 r.p.m. and a like number run 13 r.p.m.

Licker-in speeds reported varied from 350 r.p.m. to 500 r.p.m., with the majority on 450 r.p.m., ten men reporting this latter figure. One man uses 350 r.p.m., two 400 r.p.m., and one man was up to 500 r.p.m.

The production of a card in a ten-hour day was the next figure asked for, and a variation was revealed here also. On the 40-inch card, one man was down to 95 pounds per day, while the other extreme was a production of 200 pounds per day reported by another member. The range of other reports was as follows: 100 pounds, 105 pounds, 110 pounds, and 120 pounds per day, one man each; 115 pounds, two men; 125 pounds, five men; 130 pounds, two men; 135 pounds, two men; 150 pounds, two men; and 160 pounds, two men. For the 45-inch card, with less reporting, the variation was not so great. Two men card 120 pounds a day, while the same number card 125 pounds, and one report of 110 pounds per day, and another of 150 pounds completed the list for this width card.

The next inquiry into card drafts showed a majority of the men holding this around 100 approximately. The figures, for the 40-inch card, were: two men, 90; eight men, 95; eight men, 100; two men, 105; two men, 110; one man 120; and one man 130. On the 45-inch machine, two men reported a draft of 95.

Percentage of waste taken out on cards was the next question. The amount of fly taken from a 40-inch card, as reported, varies from 1.5 per cent to 2.5 per cent, one man each reporting these figures, while three take out 2 per cent, and one man 2.3 per cent. Fly taken from 45-inch cards, ranging from one report of .93 per cent to another of 2.25 per cent, with 1 per cent and 1.5 per cent each being reported by a member. As to strips, on the 40-inch, two men take out 3½ per cent. While on the 45-inch card, one man gets 3 per cent and another 3.5 per cent.

The vote was in favor of taking waste from cards once a day, 11 indicating this as their practice, while two men said they remove it twice a day.

Practices in card grinding were next requested. Six men grind 8 hours, eight men 9 hours; six men 10 hours; one man 11 hours. Eleven men believed it best to grind every 20 days; 5 men every 24 days; one man every 26 days and one every 28 days; two men every 30 days; while

one man grinds every 32 days.

On stripping, seventeen men strip twice a day; twelve men 3 times a day; and three men strip 4 times a day. Six men have the brush system, while 15 use the vacuum system, and 8 reported the combination system.

Card settings were next requested. For the doffer to cylinder, 7/1000 was the unanimous setting of 30 men. Cylinder to flats—one man, 7/1000; four men, 9/1000; 22 men 10/1000. Doffer to comb—two men, 10/1000; eight men, 12/1000. Cylinder to licker-in—seventeen men, 7/1000; three men, 10/1000; six men, 17/1000; four men, 22/1000; six men, 29/1000; and one man, 33/1000. Licker-in to feed plate—two men, 7/1000; six men, 10/1000; nine men, 12/1000; and three men, 17/1000.

As to the type of oil used in comb boxes, 19 men use the non-fluid type, and five use medium machine oil here.

Eighteen present stated they use humidity in the card room, and the different reports made showed that one man keeps 54 per cent; another 56 per cent; seven, 60 per cent; and the remainder that or more.

Drawing.

Under drawing the first question was to find out how many use one process of drawing and how many have two processes. The answers in this group indicated that only six run single drawing, while 21 still use two processes.

"What is the remedy for uneven tension on the drawing sliver with metallic rolls?" was next asked. Twelve men gave it as their practice to move the rolls around; another to "swell" the ends; while another man suggested putting all of the rolls making slack ends on one frame and changing the tension gear.

Drawing front roll speeds were asked for in the next question. For the 1⅛-inch roller, the following speeds were given: 250, 280, and 330 r.p.m., one man each; 300 r.p.m., four men; 320 r.p.m., two men. On the 1¼-inch roll, two men reported, one 250 r.p.m. and the other 330 r.p.m. On the 1⅜-inch diameter, 260, 270, 280, 290, 217, 232 r.p.m. each was reported once, while two men have a speed of 300 r.p.m.

The next point asked for was the setting of drawing frame rollers, first on Western 1-inch cotton. On front to second, one man reported 1¼-inches and another 1 5/16-inches. On second to third, two men set at 1 3/16-inches, two at 1¼-inches, and one at 1⅝-inches. On third to back, two set 1½-inches, two set 1⅜-inches, while 1 5/16-inches, 1 9/16-inches, and 1¾-inches each had one advocate. Taking next local ⅞-inch to 1-inch cotton, the following settings were given: Front to second, one man 1⅜-inches and one man 1½-inches; second to third, two men, 1 3/16-inches, two men 1¼-inches, and one man 1⅝-inches; and third to back, 1½-inches and 1 7/16-inches each had an advocate.

Weights of finisher drawing sliver made were next requested, with the following responses: two men, 45-grain; one man, 50-grain; two men, 52-grain; 1 man, 54-grain; five men, 56-grain; five men, 58-grain; one man, 60-grain; three men, 62-grain; one man, 70-grain, and one man, 75-grain.

As to finisher drawing drafts, the following variations were reported: six men, 5½ draft; nine men, 6 draft; and one man, 6½ draft.

"How often should rolls be cleaned to give best running work?" was the next question. Seven men agreed on once a week, two said twice a week, and two were in favor of twice a month.

Slubbers.

Going next to fly frames and taking up first the slubbers, the different hank rovings made were asked for, and the following were reported, from mills that use intermediates also: seven men, .50-hank; three men, .55-hank; one man, .60-hank; three men, .70-hank; and one man, .80-hank. Three men who do not have intermediates stated they make .60-hank slubber roving.

On .50-hank, twist multiples of 1.25, 1.35 and 1.50 were reported by three different men. On .55-hank, one man uses 1.2; on .60-hank, another uses 1.20; on .70-hank, another uses 1.30; and on .80-hank, the member uses 1.35.

Slubber drafts were given as follows: On .50-hank, two men, 4 draft; three men, 4½ draft. On .70-hank, one man, 3.54 draft; one man, 4.11 draft.

With a 1 3/16-inch roll, the front roll speeds reported by three men on .50-hank were 170, 185 and 210 r.p.m. On .70-hank two men reported 145 and 160 r.p.m. With a 1¼-inch roll, one other member gave 200 r.p.m. for .50-hank.

The next question brought out that none present was using cork top rolls on slubbers.

As to the length and diameter of full bobbins, twelve using the 11x5½ bobbin felt that their bobbins were that full when doffed. On the 12x6 bobbin, all agreed that the diameter of the bobbin came nearer to 5¾ inches, while one man admitted a length of 11¾ inches against three who said theirs measured the full 12 inches.

Figures on the number of spindles to the frame were given as follows: .50-hank, 72, 68, 54, 84, 48; .70-hank, 68, 64, 72, 64.

Skipping the intermediates, the next machines taken up were the

Speeders.

Here again hank rovings were asked for, and also the twist per inch at the same time, with the following responses: One man, 1.25 hank roving with 1.2 twist; one man 1.50 hank roving with 1.2 twist; one man 1.60 hank roving with 1.2 twist; one man 1.80 hank roving; two men 1.90 hank roving with 1.3 twist; two men 2.00 hank roving; one man 2.60 hank roving with 1.46 twist; and one man, 2.80 hank roving with 1.58 twist.

The draft on the 1.50 hank roving was given as 6; on the 1.90 hank roving as 6.66; on the 2.00 as 6.12, and on the 2.80 as 6.13. With 1⅛-inch diameter roll, the front roll speed on the 1.25 hank was 162 r.p.m.; on the 1.80 hank, 142 r.p.m.; on the 1.90 hank, 168 r.p.m.; on the 2.00 hank, 178 r.p.m.; on the 2.60 hank, 129 r.p.m.; and on the 2.80-hank, 119 r.p.m.

For roll settings, on Western 1-inch cotton, front to second, two men reported 1 3/16-inches, and 1½-inches for second to back. On local ⅞-inch to 1-inch stock, one man gave 1¼-inches for front to second and 1 7/16-inches for second to back.

On 8x4 bobbins, two men said they get the full length and diameter; three said theirs go to 3⅞ inches; and one man felt his was 7⅞-inches by 3¾-inches. Two spindles speeds given for the 8x4 machine were 1,150 and 1,100 r.p.m.

Tabulation for 30s to 40s.

In reading the tabulations of answers for this and the third group, if reference will be made back to the previous section for the questions themselves, it will simplify mat-

ters from the standpoint of conserving space.

The largest group out of the meeting were in the section making 30s to 40s, since the majority of the attendance was from the sections of South Carolina where print cloth numbers are woven.

Opening Room.

Four men indicated the use of 12 bales in preparing the mix; one uses 9 bales; one uses 14 bales; five use 10 bales; two use 16 bales; two use 18 bales; two use 20 bales; one uses 25 bales; one 32 bales; and another man utilizes 84 bales in the mix. This gave a range from 9 bales to 84 bales, with the average nearer the lower figure.

Eleven present use the hopper manner of feeding, while twenty prefer the apron method. Two members indicated the use of ageing bins.

As to horizontal and vertical openers, 16 showed a preference for the horizontal opener singly, and one for a tandem installation. For the vertical opener, 13 prefer a single installation, and 11 want the tandem arrangement.

Only six in this group use perforated screens in vertical openers, 20 preferring the grid bars. Five present indicated the use of bars and screen in the same machine.

On the vertical opener, the following figures on the production per ten-hour day per machine were given: four men, under 5,000 pounds; ten men between 5,000 and 10,000 pounds; four men between 10,000 and 12,000 pounds; three men between 12,000 and 15,000 pounds; two men between 15,000 and 20,000 pounds; and one man between 20,000 and 25.000 pounds.

A side question here brought the information that one man in this group has adopted the use of spraying oil on cotton.

Another man uses humidifiers in the opener room.

Picker Room.

It was indicated that out of the group, 14 present use three processes and 20 use two processes of picking. Fifteen have the single section breaker, and 16 the double section. An interesting feature developed by the next question was that eight men in the group use eveners on breaker pickers.

On the double section picker, eight use the porcupine beater in the first section, and 11 the blade beater, while all use the blade type in the second section.

It was practically the unanimous opinion of the group that re-worked lap and sliver waste should be returned to the opening room.

Beater speeds were called out as follows: Breaker, four men 800 r.p.m.; one man 600 r.p.m.; four men 900 r.p.m.; five men, 1,000 r.p.m. These were apparently three-blade beaters, for the compilation shows one man with a speed of 1,000 r.p.m. on a two-blade beater and twelve men with 1,200 r.p.m. on this same beater in the breaker. For the intermediate or second beater of breaker, one man has 800 r.p.m., another 900 r.p.m., another 1,000 r.p.m.; nine men 1,100 r.p.m.; five men 1,200 r.p.m.; two men 1,300 r.p.m.; one man 1,400 r.p.m.; and two men 1,500 r.p.m . Finisher beater speeds were: one man 800 r.p.m.; four men 900 r.p.m.; nineteen men 1,000 r.p.m.; seven men 1100 r.p.m.; and one man 1,300 r.p.m. This gave, on the breaker, a range from 600 to 1,200 r.p.m.; on the intermediate, from 800 to 1,500 r.p.m.; and on the finisher, from 800 to 1,300 r.p.m.

Six men present reported the use of humidification in the picker room.

The following figures are for percentage of waste gotten on pickers: Breaker, eight men, 1 per cent; one man, 1¼ per cent; one man, 1½ per cent. Intermediate, four men ½ per cent; two men ¾ per cent. Finisher, ten men ½ per cent; one man, ¾ per cent. As to the total waste taken out on the pickers, the following figures were given: six men, 1 per cent; three men, 1¼ per cent; one man, 1½ per cent; two men, 2½ per cent; one man, 3 per cent; one man, 3½ per cent; one man, 3⅞ per cent. A range of total waste taken out from 1 to 3⅞ per cent.

On intermediate pickers, the following drafts were reported: one man, 4¼; one man, 4; one man 3 16/100; one man, 3¾. On the finisher: One man, 3 16/100; twelve men, from 4 to 4¼; three men from 4¼ to 4½; and five men from 4½ to 4¾.

Cards.

On the 40-inch card, the following card slivers were reported: six men, 40- to 45-grain; eighteen men, 45- to 50-grain; five men, 50- to 55-grain; twelve men, 55- to 60-grain. For the 45-inch card, two men, 40- to 45-grain; four men, 45- to 50-grain; three men, 50- to 55-grain; and one man, 55- to 60-grain.

On card cylinders, the following speeds were given: two men, 150 r.p.m.: one man from 150 to 155 r.p.m.; three men from 155 to 160 r.p.m.; twenty-six men from 160 to 165 r.p.m.; two men from 165 to 170 r.p.m.

For the doffer, the following ranges were given: seven men under 8r.p.m.; twelve men between 8 and 8½ r.p.m.; two men between 8½ and 9 r.p.m.; one man between 9 and 9½ r.p.m.; five men between 9½ and 10 r.p.m.; three men between 10 and 10½ r.p.m.; seven men between 10½ and 11 r.p.m.; and fourteen men between 11 and 11¼ r.p.m.

On the licker-in, one man runs between 350 and 375 r.p.m.; four between 375 and 400 r.p.m.; nine men between 400 and 425 r.p.m.; eight men between 425 and 450 r.p.m.; and two men between 450 and 475 r.p.m.

On the basis of a 55-hour week, the following card productions were given, for the 40-inch card: two men under 500 pounds; one man between 500 and 525 pounds; two men between 525 and 550 pounds; one man between 550 and 575 pounds; three men between 575 and 600 pounds; two men between 600 and 625 pounds; two men between 625 and 650 pounds; and one man between 650 and 675 pounds. For the 45-inch card: one man between 600 and 625 pounds; on man between 700 and 725 pounds; and one man above 725 pounds.

There was one man taking out ¾ per cent fly waste at the card, two men between ¾ and 1 per cent; three men between 1¼ and 1½ per cent: one man between 1½ and 1¾ per cent; three men between 1¾ and 2 per cent. On strips, one man takes out from 1¾ to 2 per cent; two men from 2 to 2¼ per cent; one man between 2¼ and 2½ per cent; four men between 2¾ and 3 per cent; one man between 3 and 3¼ per cent; two men between 3¼ and 3½ per cent; and one man takes out 4 per cent.

Five men present take waste from cards twice daily, two every 2 days, and two twice a week.

As to grinding, one man grinds for 5 hours, another 6 hours, while twenty-one present grind for 10 hours. Four at the meeting grind more often than every 21 days; eighteen grind every four weeks; two every five weeks; and one man every 39 days.

Thirteen of the men strip more than twice a day, and

twenty-two strip twice daily. The brush system is used by twenty, with nine of the men reporting the use of the vacuum system.

Going next to card settings, for doffer to cylinder, 7/1000 as again the unanimous setting. Cylinder to flats—twenty-five set to 10/1000, while five others use different gauges here. Doffer to comb, eleven men, 29/1000; ten men, 17/1000; one man 15/1000; one man, 34/1000. Cylinder to licker-in—nineteen men, 7/1000; seven men, 10/1000; two men, 12/1000; two men, over 12/1000. Licker-in to feed plate, one man, 7/1000; fifteen men, 10/1000; twenty men, 12/1000; two men, 17/1000.

Nineteen use non-fluid oil in comb boxes, while three use ordinary machine oil.

Twenty present have humidity in the card room for best results, according to the responses.

Drawing.

Only one man in this group indicated the use of one-process drawing, while 36 use two processes.

Roll speeds were as follows: For 1⅛-inch roll, one man 350 r.p.m. and another 250 r.p.m. For 1¼-inch roll, one man from 225 to 250 r.p.m.; two men from 250 to 275 r.p.m.; five men from 275 to 300 r.p.m.; five men from 300 to 325 r.p.m.; one man 350 r.p.m.; two men, 375 r.p.m. For 1⅜-inch roll, two men, 250 r.p.m.; four men from 250 to 275 r.p.m.; four men 300 r.p.m.; two men 325 r.p.m.; twelve men, 350 r.p.m.

In getting at the roll settings for Western and local cotton, it was brought out that only two men present use local cotton entirely, 22 use Western entirely, and six use half each. The center to center roll settings, on Western cotton, were given as follows: Front to second, four men, 1¼ inches; second to third—one man, 1½ inches and one man 1⅝-inches; third to back—one man, 1⅜ inches; three men, 1½ inches; one man, 1 9/16 inches; and two men, 1¾ inches. Only one man gave his settings on local cotton, as follows: Front to second, 1 5/16 inches; second to third, 1⅜ inches; third to back, 1½ inches.

Sliver weights on breaker were reported: ten men, from 45- to 50-grain; thirteen, 50- to 55-grain; two men, 55- to 60-grain. On finisher: five men, 45- to 50-grain; ten men, 50- to 55-grain; five men, 55- to 60-grain; two men, 63-grain.

It developed next that some of the men present double five instead of six at the drawing. This was explained by one of the men in the discussion which is reported at the conclusion of these tabulations.

Doubling five on the breaker, three men reported a draft under 5; one man a draft of 5. Doubling six on the breaker, two men were under 5½ draft; five men drafting 5¾. On the finisher, doubling five, one man has 4.95 draft; four men, 5 draft. Doubling six, one man has from 5 to 5½ draft; eight men from 5½ to 5¾ draft; and eight men from 5¾ to 6 draft.

The majority—twenty-five in number—creel the drawing frames as the cans run out; six creel the breaker all at one time; and one man creels one head at a time.

Fifteen men clean rolls weekly; ten every 2 weeks; and one man every 4 days.

Non-fluid oil is used on metallic drawing rolls by 15 of the men; six using the ordinary machine oil.

Slubbers.

On the slubbers in this group the hank rovings made were divided into warp and filling, with the following responses: Warp—five men, .60- to .65-hank; eight men, .65- to .70-hank; ten men, .70- to .75-hank; three men, .75- to .80-hank; one man, .81-hank. Filling—one man, .60- to .65-hank; two men, .65- to .70-hank; four men, .70- to .75-hank; one man, .75- to .80-hank; one man, .80- to .85-hank.

The twist multiples for these hank rovings were given as follows: .65-hank—three men under 1.00; one man, 1.20. .65- to .70-hank—one man, 1.02; one man, 1.14; one man, 1.21; one man, 1.13; one man, 1.30; one man, 1.34. .70- to .75-hank—one man, 1.13; one man, 1.21; two men, 1.30; one man, 1.34. .72-hank—one man, 1.21. .83-hank—one man, 1.25.

Slubber drafts were as follows: ten men, 4 to 4¼; thirteen men, 4¼ to 4½; five men, 4½ to 4¾; three men, 4¾ to 5; one man, 5.08.

The responses as to lay per inch on different hank rovings were: .60- to .65-hank—three men, 7; one man, 8. .65- to .70-hank—one man, 7½; two men, 8. .75- to .80-hank—two men, 8; one man, 7.6.

Front roll speeds, with the 1 3/16-inch roll, were given as follows: .60- to .65-hank, one man 161 r.p.m., and one man 165 r.p.m., and two men 168 r.p.m. .65- to .70-hank, one man 181 r.p.m. .75- to .80-hank, one man 141 r.p.m., and one 144 r.p.m.

For the 1¼-inch roll, under the different hank rovings shown, each front roll speed listed was given by one man: .60- to .65-hank, 186; .65- to .70-hank, 159, 161, 165, 169, and 175. .70- to 75-hank, 150, 154, and 158. .75- to .80-hank, 156 and 157. 81-hank, 156.

As to roll settings, with the 1 3/16-inch front roll, the following reports were made: front to second, three men, 1¼ inches; one man, 1 9/32 inches; two men, 1 3/16 inches; one man, 1 5/16 inches. Second to back, two men, 1½ inches; 1 9/16 inches, 1⅞ inches, 1⅝ inches, 1¼ inches, 1 5/16 inches, one man each.

With the 1¼-inch roll, the only setting reported was from front to second, as follows: 1¼ inches, three men; 1 3/16 inches, two men; 1⅛, 1⅜, 1 5/16 inches, one man each.

Intermediates.

The first question under this head showed that seventeen of the men have one hank roving to be made into warp and filling, while eleven make separate hank rovings for warp and filling. In the following listing of the hank rovings reported, the figures of those making only one roving for both are included with the warp figures, while the filling rovings of those making them separately, are shown next.

For warp: one man, 1.60 hank; one man between 1.60 and 1.65; two men, between 1.65 and 1.70; one man between 1.70 and 1.75; one man between 1.75 and 1.80; two men between 1.80 and 1.85; three men between 1.90 and 1.95; ten men between 1.95 and 2.00; two men between 2.00 and 2.05; five men between 2.05 and 2.10; one man between 2.10 and 2.15; and one man between 2.15 and 2.25. For filling: one man, 1.68; five men, 2.00; two men, 2.00 to 2.05; two men, 2.05 to 2.10; one man, 2.10 to 2.15; two men, 2.15 to 2.20; and three men, 2.20 to 2.25.

The next question referred to the twist inserted, and in answering, some men gave twist multiple, and some the twist per inch, which will be indicated in this case. One man reported for each range of hank rovings listed. For warp: 1.60 to 1.65 hank, 1.39 twist multiple; 1.65 to 1.70

hank, 1.40 twist multiple; 1.70 to 1.75 hank, 1.35 twist multiple; 1.75 to 1.80 hank, 1.69 twist per inch; 1.80 to 1.85 hank, 1.69 twist per inch; 1.95 to 2.00 hank, 1.83 twist per inch; 2.00 to 2.05 hank, 1.77 twist per inch; 2.05 to 2.10 hank, 1.90 twist per inch; and 2.20 hank, 2.00 twist per inch. For filling: 2.00 to 2.05 hank, 1.83 twist per inch; 2.10 to 2.15 hank, 1.95 twist per inch; 2.15 to 2.25 hank, 1.84 twist per inch.

As to draft, the following reports were made. For warp: 2.00 hank, one man 5.25 draft; 1.65 hank, twelve men 5.25 to 5.50 draft; 1.70 hank, two men 5.50 to 5.75 draft, three men 5.75 to 6.00 draft, one man 6.25 draft and two men 6.03 draft. For filling roving, one man uses a draft of 5.50 and six reported a draft of 6.

Front roll speeds, on warp roving, with 1 3/16-inch roll, were: 1.60 hank, 163 r.p.m.; 1.80 hank, 140 r.p.m.; 1.85 hank, 122 r.p.m.; 2.10 hank, 118 and 130 r.p.m.; 2.15 hank, 128 r.p.m.; and 2.25 hank, 108 r.p.m. With the 1¼-inch roll: 1.85 hank, 156 r.p.m.; 2.00 hank, 150, 117, 115, 133 and 142 r.p.m.; 2.10 hank, 160 and 151 r.p.m.; and 2.25 hank, 144 r.p.m. With the 1⅛-inch roll: 1.95 hank, 152 r.p.m.

Speeders.

The final process of fly frames in this group was divided into warp and filling, and considered separately. The range of hank rovings made for warp was reported as follows: 5.00-, 5.20- to 5.25-hank, 5.25- to 5.30-hank, 5.70- to 5.80-hank, two men each; 5.30- to 5.35-hank, 5.60- to 5.70-hank, and 6.90-hank, one man each; 5.80- to 5.90-hank, three men; 5.90- to 6.00-hank, four men.

The twist inserted was given as follows: 5.00-hank, 1.45 twist multiple; 5.25- to 5.30-hank, 2.76 twist per inch, 2.65 twist per inch, and 1.35 twist multiple; 5.80- to 5.90-hank, 1.40 twist multiple, 2.90 twist per inch, and 3.44 twist per inch; 5.90-hank to 6.00-hank, 3.39 twist per inch, 1.60 twist multiple, 1.42 twist per inch, and 3.31 twist per inch.

The draft figures for the warp roving are next, one man reporting each of the figures listed: 5.00-hank, 6 draft; 5.25- to 5.30-hank, 6.40 and 6.30 draft; 5.30- to 5.35-hank, 6.66 draft; 5.60- to 5.70-hank, 5.40, 6.15, 6.21, and 6.50 draft; 5.80- to 5.90-hank, 5.31 and 6.60 draft; 5.90- to 6.00-hank, 5.58, 5.80, 5.50, and 5.97 draft.

Taking next the filling speeders, the hank rovings made were given as follows: 5.95-, 6.25-, 7.75-, and 7.69-hank, one man each; 6.25- to 6.75-hank, four men; 6.75- to 7.00-hank, six men; 7.00- to 7.25-hank, three men; 7.25- to 7.50-hank, eight men.

The different twists inserted, one man reporting each figure as listed, were as follows: 6.25-hank, 1.63 twist multiple; 6.25- to 6.50-hank, 1.50 twist multiple; 6.75- to 7.00-hank, 1.46 twist multiple, 1.42 twist multiple, 3.13 turns per inch, and 4.55 turns per inch; 7.25- to 7.55-hank, 3.74 turns per inch, 4.14 turns per inch, and 1.35 twist multiple.

The drafts reported, each by one man, were: 6.25-hank, 7.00 and 6.90 draft; 5.95-hank, 6.65 draft; 6.75- to 7.00-hank, 6.82, 6.90, 7.00, and 7.50 draft; 7.25- to 7.50-hank, 7.09, 6.58, 6.49, and 7.00 draft.

Assuming that a 1⅛-inch roll is used in all cases, the front roll speeds given were as follows (each figure representing the report of one man under the different hank rovings): 6.25-hank, 91 r.p.m.; 6.75- to 7.00-hank, 85, 86, 103, and 91 r.p.m.; 7.25-hank, 86, 83, 98, 90, 88, 84, 90, 84, and 92 r.p.m.

Tabulation for Numbers Above 40s.

The third group making a tabulation for the questionnaire consisted of men spinning numbers above 40s. If, as in the previous case, the reader will refer back to the first tabulation if the question is necessary to explain the answers herein, the report will be simplified.

Opening Room.

In this group, the number of bales used in a mix, as reported, range from 8 to 20, with the following details; two men, 8 bales; three men, 10 bales; two men, 12 bales; one man, 14 bales; one man, 15 bales; one man, 18 bales; and one man, 20 bales.

Six of the men here use the hopper method, and five use the apron system of feeding. No one in the group indicated the use of ageing bins for the cotton.

The single horizontal opener was preferred by two men, and this machine in tandem was the choice of two more. Two others like the vertical singly, while three prefer this equipment in tandem.

No one in the group uses perforated screens in the vertical openers, grid bars being the unanimous selection.

The next question brought out the amount of waste removed in openers. One man reported 2 per cent with the horizontal opener. From a single vertical opener with grid bars, another reported .062 per cent; while another member, using this machine similarly equipped, two in tandem, gave .0131 as his waste figure from the first, and .009 from the second.

Considering ten-hours as a day, three men gave the production of their horizontal cleaners as 2,500 pounds daily; while for the vertical, the figures of 6,000, 3,200, and 3,000 pounds daily were reported by three different men.

As to humidification in the opener room, the chairman reported "sentiment against this."

Picker Room.

Six men use three processes of picking, and seven others employ two processes, with ten using the single section breaker, and two using the double-section machine. One man said he uses eveners on his breaker pickers. One of the men with the double-section breaker uses a porcupine beater for the first section and a blade beater for the second; while the other fellow has blade beaters in both sections. With the single section beater, seven indicated the use of blade beaters, with the remainder using the porcupine type here.

A divided opinion was brought out as to how often pickers should be torn down for cleaning and inspection. One man said every two weeks, another every three weeks, another every month, another every two months, and another said six months was sufficiently frequent.

Two men use the ¼- ½- ¾-full method of dividing the laps on the picker aprons, while the majority—seven reporting—favor running two full and two half-full.

Out of the nine reporting, seven believed re-worked lap and sliver waste should be returned at the opener, while the other two preferred putting it in the breaker.

Beater speeds were next. For the breaker, these ranged from 650 to 1,075 r.p.m., as follows: one man, 650 r.p.m.; one man, 800 r.p.m.; two men, 850 r.p.m. three men, 900 r.p.m.; one man, 920 r.p.m.; and one man, 1,075 r.p.m. Beats per inch on the breaker ranged from 22 to 56, with 22, 23, 24, 25, 27 and 56 beats per inch each being reported by one man.

On the intermediate, two men run beater speeds of 800, and one 850, and another 950 r.p.m. Two men reported beats per inch of 52 and 46 on the intermediate machine.

The highest finisher beater speed reported was 1,000 r.p.m., given by two men; while 900, 860, 800, and 870 r.p.m. each was reported by a man. Beats per inch on the finisher, reported separately, were, 72, 48, 47, 50, 49, 70, and 76.

The production of breaker pickers in yards per minute was given as follows: two men, 6; two men, 7; one man, 8; one man, 10. Finisher production was given: two men, 3½ yards per minute; one man, 4½ yards per minute; and two men, 6 yards per minute.

It was practically a unanimous agreement that humidity in the picker room should be held to 57 per cent, although against ten who agreed that cotton cleans better at a low humidity, one man's opinion was that high humidity induces better cleaning.

The percentage of waste taken out on breakers brought one report of .0025 per cent, two of .01 per cent, another of .0066 per cent. On the finisher, one report was .0037 per cent, two others, .0025 per cent; one of .01 per cent; and one of .0045 per cent.

Responses for beater settings were: Breaker beater to top grid, two ½; two ⅝; one ¾; and one 7/16. Breaker beater to bottom grid, one ½; two ¾. Intermediate beater to top grid, one ½ and one ⅝. Intermediate beater to bottom grid, one ⅝. Finisher beater to top grid, two ½; three 7/16. Finisher beater to bottom grid, three ½; one ⅝; and one ¾.

Beater to feed roll settings were: Breaker, four ¼ and three 3/16. Intermediate, two ⅛. Finisher, one ⅛ and three 3/16.

One man reported an intermediate draft of 4.30 on pickers, while the following finisher picker drafts were given: two men, 4.00 draft; two men, 5.00 draft; one man, 4.50 draft; one man, 4.72 draft; and one man, 4.80 draft.

The answer given to the question, "What improvements have been made by the addition of patented devices, and to what extent have they helped?" was summed up: "Ball bearings on aprons, eveners and rockers produce more uniform laps and save power."

Cards.

Card sliver weights for 40-inch cards were given as follows: one man, 40-grain; one man, 38-grain; one man, 42-grain; two men, 44-grain; one man, 47-grain; one man, 49-grain; and one man, 50-grain. For the 45-inch card one man reported a sliver of 40-grain.

Card cylinder speeds were: three men, 160 r.p.m.; four men, 165 r.p.m.; one man, 168 r.p.m.; and one man, 175 r.p.m.

Doffer speeds were listed as follows: one man, 5½ r.p.m.; one man, 6 r.p.m.; one man, 6¼ r.p.m.; two men, 6½ r.p.m.; two men, 7 r.p.m.; and two men, 9½ r.p.m.

Licker-in speeds stayed around standard, as follows: one man, 423 r.p.m.; one man, 424 r.p.m.; two men, 425 r.p.m.; two men, 450 r.p.m.; and one man, 434 r.p.m.

Card drafts were: one man, 95; three men, 109; two men, 110; one man, 111; one man, 125; one man, 130; and one man, 138.

The 55-hour week production of the 45-inch card was given by one man as 350 pounds. On the 40-inch card the answers were: three men, 300; one man, 281; one man, 250; one man, 357; one man, 330; and one man, 360 pounds.

A percentage of fly waste taken out on cards was reported by three men at .01; at .0125 by one; at .0130 by another; at .0093 by one; at .0135 by one; and at .015 by another. On strips, the percentages of .045 was given by one man; with .0536, 0.15, .0468, and .033 being each reported by different men.

Four men in this group take waste from the card every 10 hours; five every 20 hours; and one every 40 hours.

It is uneconomical to re-draw cylinder fillet which has become slack without abuse at the point where the foundation will not hold the wire firmly, was the opinion of this group in answer to the next question.

Length of grinding time brought a difference of opinion. One man said 9 hours, another 4 hours; three said 6 hours; and four grind for 8 hours. As to the frequency of grinding, intervals of 14, 16, 17, 20, 24, and 28 days each received one vote; while two other men grind every 18 days.

One of the men strips the cards every 2 hours, and another every 3½ hours. Between these two, there were four who strip every 2½ hours, and five who strip every 3 hours. Five of those present use the brush system, and seven the vacuum method.

Card settings were next. Ten of the group agreed on 7/1000 for doffer to cylinder, while one man dissented, using 10/1000 gauge at this point. Cylinder to flats: seven men, 9/1000; three men, 7/1000; one man, 10/1000. Doffer to comb: seven men, 12/1000; one man, 17/1000; one man, 22/1000; one man, 29/1000. Cylinder to licker-in: ten men, 7/1000; one man, 17/1000. Licker-in to feed plate: five men, 10/1000; three men, 12/1000; two men, 7/1000; and one man, 17/1000. Licker-in to mote knives: two men, 10/1000 and 12/1000; five men, 5/1000; and one man, 10/1000. For the cylinder to screen: five men gave two settings, each differing, as follows: 29/1000 and 34/1000; 32/1000 and 64/1000; 29/1000 and 58/1000; 34/1000 and ¼-inch; 34/1000 and 68/1000. Two gave this setting: 17/1000 and 29/1000 and ¼-inch; and another gave 17/1000 and 29/1000 and 3/16-inch as his setting.

Six men in the group use non-fluid oil in the card comb boxes; four use engine oil; and one man reported the use of spindle oil here.

Votes on the amount of humidity essential in the card room showed five men agreeing on 58 per cent; two on 55 per cent; while 45 to 50 per cent, and 60 per cent, each received a vote.

Drawing.

On this subject it developed that four men use only one process, while ten employ two processes.

"New rolls and collars" was given as the remedy for uneven tension on drawing sliver with metallic rolls, which was next asked by the chairman.

Front roll speeds were next reported. With the 1¼-inch roll, the range was 172, 175, 212, 225, and 250 r.p.m., one man reporting on each. For the 1⅜-inch roll, the speeds ran: 270, 253, 280, 290, 283, 320, 300, and 315 r.p.m., with each figure being given by one man.

Drawing roll settings on Western cotton were next. For front to second rolls four men said 1¼ inches; two said 1 5/16 inches; while one man sets to 1½ inches. For second to third rolls, two men set to 1½ inches, while 1¼ inches, 1⅜ inches, and 1⅝ inches each received a vote. On the third to back rolls, one man reported 1¾ inches, another 1½ inches and a third 1⅜ inches.

No two men were making the same weight of breaker drawing sliver, as one vote each was given to 45-grain, 46-grain, 47½-grain, 50-grain, 51-grain, 52-grain, 54-grain; 55-grain; and 56-grain. On the finisher, two of the men make a 52-grain sliver, while others make 48-grain, 49-grain, 50-grain, 56-grain and 62-grain.

Drafts on breaker drawing were: one man, 5.00 draft; one man, 4.90 draft; one man, 5.50 draft; two men, 5.75 draft; one man, 5.65 draft; and one man, 6.00 draft. On the finisher, the drafts were: one man, 5.08 draft; one man, 5.75 draft; one man, 5.77 draft; two men, 5.80 draft; one man, 5.95 draft; and two men, 6.00 draft.

Opinion was about evenly divided as to the best method of creeling the drawing frame, whether all at one time because of evenness and convenience, or as the cans run out on account of the conservation of cans.

"How often should rolls be cleaned to give best running work?" was the next question. With metallic rolls, four men clean every 4 weeks. With leather rolls, one man cleans every 2 weeks, another every three weeks; three others every 4 weeks; and one man every 3 months.

On metallic rolls, four use non-fluid oil, and two ordinary engine oil.

Speeders.

On speeders, the hank rovings made, the twist inserted, the lays per inch, and draft, were all the points covered.

The hank rovings ranged as follows: one man, 2.90-hank; one man, 3.00-hank; one man, 3.25-hank; one man, 3.80-hank; one man, 4.00-hank; one man, 5.50-hank; and one man, 5.85-hank.

The twist per inch for the 2.90-hank was 2.26; for the 3.80-hank, 2.80; for the 3.00-hank, 2.00; for the 3.25-hank, 2.25; for the 4.00-hank, 3.00; for the 4.50-hank, 3.00; and for the 5.85-hank, 3.6

Lays per inch reported were: 2.90-hank, 17; 3.00-hank, 17; 3.25-hank, 18; 4.00-hank, 20; 3.80-hank, 22; 4.50-hank, 19; and 5.85-hank, 25.

The three drafts reported were 5.50, 6.56, and 5.60.

The tabulation work was suspended at 12:30 o'clock, when the members repaired to the main dining room for the customary "Dutch" luncheon, which was made more enjoyable by several vocal numbers sung by Spartanburg songsters.

After the lunch, and returning to the meeting hall, the delegates were entertained with several old negro spirituals, sung by a local colored aggregation, brought to the meeting by W. A. Black, superintendent, Beaumont Manufacturing Company, Spartanburg, S. C. The compilation of the figures was then resumed, and when this was concluded, Mr. Corn called on each of the chairmen to read off the results of various questions in each department. Since all of this information is included in the foregoing complete tabulations, it is not repeated here.

Discussion.

When the chairman had finished calling for the figures from the tabulations, a brief discussion on scattered points of interest with reference to carding was conducted. This was begun by a question from Mr. Cobb: "How many days do you run the traverse grinder before changing the emery?"

"We change the emery every week, regardless of whether it is good or bad," replied T. N. Crocker. "We grind a card about ten hours and grind it every twenty days. We keep our emery practically new all of the time. It doesn't cost us very much and we believe it is worth it."

"Is anyone trying to clean the emery and use it again?" was Mr. Cobb's next question.

"I understand that in New England some of the mills are grinding the top flats with a traverse roll instead of a drum roll," said Mr. Crocker.

"Is anybody using No. 6 emery on the flats?" asked Chairman Corn. He stated that he does this, because he thinks it gives a better point on the wire; it is better than 40s, he said, the emery is coarser and gets between the wire.

"Is it necessary to grind the doffer as long as the cylinder?" asked Mr. Armfield of Greensboro. "I do not believe it is necessary," answered Mr. Crocker. "We usually grind lighter on the doffer than on the cylinder. We set the roll a little heavier on the cylinder because of the larger circumference."

Mr. Corn asked if anyone present runs at a slow speed while grinding, but there were no affirmative responses.

"Well, is it advisable to grind light and for a long time or heavy and for a shorter time?" queried Mr. Dilling.

Mr. Crocker gave it as his opinion that a heavy, shorter grinding is preferable in order to get a rough-like point on the wire, instead of a polished one.

Mr. Corn then said that the subject of spraying raw cotton with oil had been put up to him during the day, and suggested some discussion on this subject.

"I am using the oil spray on 40s to 70s," reported Mr. Dilling. "Of course, it is not a 'cure-all,' but I am using it with very satisfactory results. I think it has some mighty good features. I use about 1/3 of one per cent. I started out with it on one machine and now have it on all of them, I think to advantage."

"In what way," asked Mr. Corn.

"I think my mill stays cleaner," answered Mr. Dilling.

"Then the advantage is practically all in retaining the dust?" asked Mr. Corn.

"I do not think there is any increase in the breaking strength," said Mr. Dilling, "but my yarn looks smoother and I think we save more stock."

"You have combers, don't you?" asked James A. Chapman, Jr., vice-president and superintendent, Inman Mills, Inman, S. C.

"Yes," answered Mr. Dilling.

"I think that makes a difference," was Mr. Chapman's comment.

Here Mr. Dilling stated that it is wise to keep down the percentage of oil applied. He stated that he experimented up to 2/3 of one per cent and "got into trouble."

"What was the trouble?" asked B. R. Burnham, superinendent, Whitney (S. C.) Manufacturing Company. Mr. Dilling replied that it was in gumming up on the cards.

"Nothing on the speeders and spinning?"

"No," said Mr. Dilling. "I do not believe the web *looks* quite as good on the card. That is the only disadvantage I see to it. But it looks better everywhere else."

Here T. A. Hightower, manager, Kendall Mills, Inc., Edgefield, S. C., raised the question as to whether anyone had tested any card flats to see if there was a taper in the center in the grinding.

Mr. Burnham said he had made such tests, "and found that our flats would be as much as 21/1000 lower in the center than on the ends, and consequently we had to go over the whole mill and get that out. We looked for the cause of it and never have found it, but at the present

time the manufacturers of the drum grinders are making them 5/1000 smaller in the center than on the ends. We finally arrived at the partial explanation that it was due to oil on the ends of the grinder doing away with the cutting there."

It was also Mr. Hightower's opinion that it was due to the centrifugal force throwing oil into the selvage of the cylinder, causing the grinding fillet to become slick, losing its surface and not being rough at the edge to cut as it does in the middle. He declared there was a variation of from 3 to 8/1000 of an inch, and that it seemed to him that the only remedy was to renew the grinding emery.

Mr. Crocker disagreed, declaring that in his opinion the big cause was from the fact that there was such a distance between the bearings of the drum roller, and that the vibration of the roll in the center, or at the point furtherest from the bearings, caused this trouble. He said that is why the traverse grinder is being adopted in New England as he had previously mentioned.

Tapering a spare drum from the center toward each end in accordance with the taper shown in the previous grinding was the way he had solved the problem when it had become a big one, declared Mr. Layfield of the Anderson (S. C.) Cotton Mills.

Mr. Davis of Greensboro asked for information with reference to using four or five ends up at the back on drawing, with lower drafts, and the chairman added that several had indicated they were doing that in answering the questionnaire.

"I do this with good success," said P. A. Smith. "Making 21s yarn, I use five ends up at the breaker drawing for the reason that I do not have intermediates between the slubbers and speeders, and do not want to make two different kinds of drawing, so I break out one end of the warp."

Mr. Hightower brought up the final question that was discussed—"How many ends should come down on a speeder in ten hours, and how many ends should come down from 1,000 spindles on a spinning frame in ten hours?"

"I cannot answer that ," responded Mr. Burnham, "but I know a mill which considered that five ends to the hundred spindles, on 30s yarn, per hour, was good running spinning, and I know of speeders on 3.00-hank roving that have two and three ends down in three hours."

At this point Mr. Cobb asked the men to make tests on this point and report their findings at the summer meeting, and a large number promised to do this. Mr. Hammond of Balfour suggested that while doing this, the men determine insofar as possible as to what makes the ends come down. In this connection Mr. Smith stated that he had several young fellows around the mill who did nothing but things of this kind, and that on this point the average man would be astonished at the possibilities for remedying things upon such an investigation. He declared that on 21s warp, he has 2,960 spindles to the spinner, single roving, and that his tests show a low breakage of 1.8 ends per hundred spindles per hour, with an average of 2.10. On 25s filling, single roving, the breakage ranges from 3.5 to 4.25.

J. L. Dorn, superintendent, Oconee Mills Company, Westminster, S. C., declared the way to do it was to watch when the spinning got down on 30s to say 106 r.p.m. on the front roll, find out what caused the end breakage, remedy this, take out a tooth of twist, watch the end breakage, remedy the causes, take out another tooth, and and get it on up, and then after securing the maximum speed, if something necessitated putting the twist back in to stay with it and watch the causes of end breakage so the speed could be held up.

This practically concluded the discussion, and after a vote of thanks to Chairman Corn, the meeting was adjourned.

COTTON CHATTER
By Chatterer

The cloth room boss
Came to me
The other day
And he was mad
Because there were
So many bunches
In the cloth.
I went immediately
To the spinner
And we watched
All the doffers
Piece up their sides.
Among the boys,
Were two new ones
Who were doing
Just as I thought
For they were piecing
Up quite high
On the quills.
We stopped this
Very quickly
And very soon
The bunches quit,
So I heard
No more of this
From the C. R. Boss.

Interest in the fact that the Graton & Knight Manufacturing Company, Worcester, Mass., is 75 years old this year, is given an additional human and personal angle in that H. C. Graton, one of the original founders of the business, is alive at the age of 95 years to celebrate the diamond jubilee. In 1851, Mr. Graton, with Mr. Knight, established the company, in a two-room shop which measured about 20x60 feet. During the 75 years of his activity with the business, this pioneer has seen this organization grow into one of the leading manufacturing concerns in the world, and in its particular industry the largest; the company handling 300,000 hides a year in their tanneries for belting, those parts of the hide not used for this purpose being converted into hundreds of other mechanical leather products.

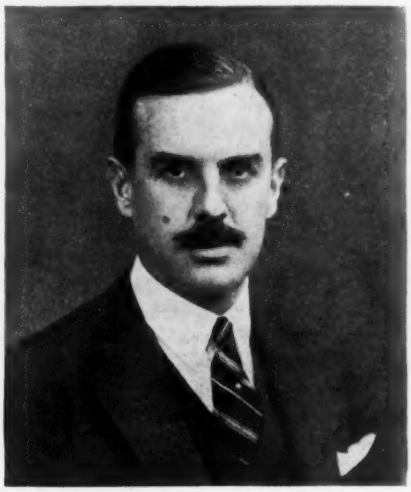
"A Bibliography on Research" is the title of a new work just issued by the National Research Council, 29 West 39th street, New York. This publication contains nearly 1,500 references compiled from articles appearing in the technical and trade magazines, and relating to research.

National Association Holds Good Meeting

A splendid attendance of New England mill men responded to the call for the 120th semi-annual meeting of the National Association of Cotton Manufacturers, held in Boston on Friday, April 16th. This fact, together with the program arranged, resulted in a successful occasion from every standpoint.

The program committee received practically unanimous congratulation upon the arrangement of sessions carried out for this meeting, in that the convention was condensed into one day, with preparation made for covering thoroughly the purpose of the meeting within that time.

A discussion and business session was held on Friday



President William B. MacColl.

afternoon, and the traditional banquet, on Friday evening, concluded the convention. The detail and executive work being transacted by the officials and committees, a method toward which there is coming a definite trend in industrial association operation.

President William B. MacColl, of Pawtucket, presided in an able manner at the sessions of the convention, with Russell T. Fisher as secretary. An interesting feature of the business transacted was the election of Mr. Fisher to the secretaryship of the organization, in which capacity he has been serving since the death of the late Harry C. Meserve shortly following the Fall meeting of the Association in Boston.

Mr. MacColl opened the first session at 2:30 o'clock on Friday afternoon, in the Swiss Room of the Copley-Plaza Hotel. An unusually large attendance was on hand, with a material number coming in during the progress of the session. The president stated that preliminary to the discussion feature, there were a number of announcements to be made, the first of which he brought as the recommendation of the officers and board of government, that Sidney B. Paine, of the General Electric Company, be elected an honorary member of the Association. This was voted unanimously. In presenting Mr. Paine with the honorary membership certificate, President MacColl declared that the recipient had been actively interested in the Association since 1875, and that he was elected to associate membership in 1895. "He was awarded the Association medal in the Spring meeting of 1902 for his paper on 'The Electrical Driving of Textile Establishments'," said Mr. MacColl, "and at the time of the award the association announced that it wished also to recognize the value to the mills of Mr. Paine's engineering skill in the practical development of the electrical transmission of power."

In responding, Mr. Paine graciously thanked the Association for the honor, which had previously been conferred upon four other men: A. Lawrence Lowell, LL.D., president of Harvard University; Henry Smith Pritchett, LL.D., of the Carnegie Foundation; Former Governor Edward C. Stokes, of New Jerseyy; and Former Secretary of War John Wingate Weeks.

The next feature of interest was the election of Russell T. Fisher as permanent secretary of the Association, to fill the vacancy made by the death of Dr. Meserve last Fall. Mr. Fisher has been with the Association since

Secretary Russell T. Fisher.

March, 1922. He is a graduate of the Lowell Textile School, receiving his diploma in 1914 and the degree of Bachelor of Textile Engineering in 1925. Upon being graduated, he went with the Marshall Field Company, and was employed in the manufacturing department of that corporation until America entered the World War, when he enlisted in the 27th Division. Later he was detailed for special duty on aircraft fabrics, and was subsequently appointed assistant chief of the textile section of the United States Bureau of Standards, holding that position until he became technical secretary of the National Association in 1922. While in this position, Mr. Fisher built up the technical and research divisions of the organzation to their present efficient standing.

This concluding the formal business session, the president announced that the meeting would enter into the "Open Forum" discussion of mill subjects. For this phase of the meeting, he introduced W. S. Pepperell, who acted

as chairman of the discussion. Rather an interesting session of informal discussion was then held under Mr. Pepperell's direction. However, being conducted under a guarantee of non-publication, no report is made here of the remarks. The subjects discussed included long-draft spinning, oiling of cotton, selling the mill product, advertising cotton goods, and others.

After this discussion, the meeting adjourned until 7:30 o'clock Friday evening, when the banquet was held in the ball room of the Copley-Plaza Hotel.

President's Banquet Address.

President MacColl served as toastmaster. The Copley-Plaza orchestra furnished music, and the Concord quartette entertained with several vocal selections. Following the music, President MacColl made the semi-annual address of the presiding officer, prefacing his remarks by an expression of appreciation for the attendance, especially the presence of Senator William M. Butler, of Massachusetts, and a number of the past presidents of the Association. With reference to the former officers, he said that "their continued interest in the Association is appreciated, and it should be our aim to carry on the policies which they so carefully established, and to give ever-increasing service to our membership. The gratifying results of our recent membership drive have strengthened the organization, and will help us to attain a position of still greater usefulness to the cotton industry.

"Your board of government has considered many plans for increasing interest in the merits of cotton textiles," continued Mr. MacColl. "We have realized that the trend of style has recently turned towards silk dress goods, to the detriment of cotton goods. We believe, however, that the day is not far distant when King Cotton will again come into his own, and the beauty of texture and design which has in the past featured this product will again return to more popular favor. For economy, comfort and serviceability, no material surpasses cotton. Its freshness and coolness are apparent. Notable development has been made by manufacturers in producing cotton fabrics that are increasingly beautiful in color design and construction. Few imported cotton fabrics are being produced in any volume which are more attractive than those manufactured right here in our own New England mills.

"This year, our country celebrates a great national birthday, the 150th anniversary of the signing of the Declaration of our Independence—a truly notable year, in which one may well pause to consider the great industrial developments that have taken place in this country during that period. Although our political independence was established in 1776, our industrial independence has been more recent. Our own industry has gone ahead with leaps and bounds in this period. Great textile plants have been erected in the North and South. Nothing abroad surpasses them in construction or equipment. We may well be proud of our great factories. Our textile machinery makers have also kept pace with the times, as attested by the interesting exhibition now being held in Mechanics Hall, Boston. Personally, I doubt if any finer cotton or worsted machinery is being produced in the world today than that which is being made in our own country. Another great achievement has been the rapid and marvelous development in the manufacture of dyestuffs. In the short span of time since the war, this industry has been organized and has grown to such an extent that we are no longer dependent upon European countries to supply our needs. We can use with confidence colors that are produced by American concerns. We can also refute any claims that imported colors are faster and better; they are not. We extend our congratulations to American dyestuff manufacturers for their rapid progress.

"For years, the American public has been led to believe that anything offered for sale bearing the imported label was superior to that made in the United States. This propaganda has been worked to the limit, and we are now entering an era when American merchandise made by American workmen will receive the confidence and recognition to which it is entitled. It is not necessary at this time to mention other great industrial developments, such as have occurred in steel working, automobile manufacturing, radio, farm machinery, and countless other products, in which this country is recognized as leading the world. Suffice to say that we in the textile industry are contributing our share, and now is not the time for us to be disheartened, although the textile outlook is not all that might be desired. The cotton industry has confidence in its ability to work out its own salvation, if unhampered by burdensome taxation and retarding State legislation. The future offers the same opportunity for success as the past, provided we are alive to the ever-changing modes of fashion, and receive the whole-hearted confidence and co-operation of our employees. The wage earner has a mighty responsibility in our future development. A fair and equitable return should be paid labor to maintain a proper standard of living, but, in return, an honest endeavor should be made by it to meet the modern methods of production, so as to ensure a continuance of the supremacy that we are striving to maintain."

Upon concluding his address, Mr. MacColl presented William J. Vereen, of Moultrie, Ga., president of the American Cotton Manufacturers Association. Mr. Vereen brought the greetings of his Association, and extended a cordial welcome to the New England men to attend the Atlanta meeting of the American Association on May 18 and 19.

Theodore H. Price, of New York, was the next speaker, his subject being, "The Constructive Influence of an Optimistic Faith." Mr. Price's address follows in part:

"Having been graciously allowed to select the subject to which I would address myself this evening, I have chosen a topic suggested by an article published in the London Spectator.

"It is written by Mr. J. St. Joe Strachey, formerly the Editor-in-chief and now a sort of Contributing Editor to the magazine that Addison founded more than two centuries ago.

"Mr. Strachey is one of England's most distinguished journalists. He recently visited America, and in telling of what he heard and saw here he says:

> But, great as were the material and topographical victories of the pioneers, their psychological achievements were even greater. What is it that makes America the most vital, the most intrepid, and so the most successful country in the world? The answer can be given in five words—*the optimism of her inhabitants.* Here is the secret of her success. All Americans are at heart optimists. They believe that, come what may, they are certain to win. Even when they seem depressed and anxious, they keep alive, though strictly hidden away, the sacred flame. You cannot shake their belief that in the end all will be well. They will not hear of over-leaping, or over-expanding, or over-trading. They see before them a perpetually rising market. Though when over-tired by exertion they may have some temporary sick fancies, they feel that these are but shadows. Amelioration, betterment, development are, to them, the only realities of life.
>
> How can a people genuinely possessed of this belief fail? They have an unlimited and inexhaustible credit at the Bank of Endeavor. After all, what is that precious thing credit but a belief—a belief that you will pay your way win, and make

good, and that nothing can permanently arrest your forward movement?

Here let me warn anyone who needs the warning that it is the vulgarest of vulgar errors to think that nations grow strong and rich and prosperous because of their material endowments—their fine climate, their rich and virgin soil, their mines, their forests and their fecund rivers. These are but rich frames. It is, as I have said before but cannot say too often, only the energy, *morale*, and indwelling spirit of enterprise that gives a people the prerogative of greatness. It was the optimist spirit of the pioneers that crowned America as *Regino Terrarum*—the Queen of the terrestrial globe.

"To see ourselves as others see us is supposed to be salutary, although it is not always flattering to our vanity. But when we are discouraged and downcast, it heartens us to know that others still believe in our ability and efficiency, and so I am glad of an opportunity to put Mr. Strachey's encouraging words before you tonight. In a peculiar sense you represent the cotton textile industry of New England, and I know that many of you feel discouraged. That there is some warrant for this feeling I will not deny, but I am here to tell you that the winter of your discontent is drawing to its close and that it will soon be made glorious by a summer of prosperity if you will but forget the adversity from which you are emerging and give rein to the optimistic faith that enabled your forebears to meet and surmount the difficulties they encountered when their resources and their knowledge were far less than yours.

"You all recollect John Bunyan's story of the Hill of Difficulty. To me it has always been one of the most inspiring allegories in English literature. Christian, you know, was slowly ascending the Hill of Difficulty, when he came upon two men who were running down. One was named Timorous and the other Mistrust. They called to him, 'Don't go up there. Can't you hear the lions roaring?' He stopped and listened. The terrifying roar of the lions was distinctly audible, and he was about to turn and flee.

"But plucking up courage he went cautiously ahead until he came in sight of the lions, and found them so chained that they could not harm him. So it is I think with many of the Hills of Difficulty that we all have to ascend. We are terrified by the roar of unseen lions that are in reality chained and harmless. I know that the business of manufacturing cotton goods has not upon the whole been profitable for the last two or three years. But I know also that it was highly profitable for the decade ending with 1920, and I have but little doubt that if you will take a decennial instead of an annual balance sheet most of you will find that you are better off at the end of 1930 than you were on December 31, 1920.

"In London there is a rich but old fashioned firm of merchants that does a world-wide business. They strike a balance and divide half the profits shown only once in ten years. The remaining half is carried to reserve account, and is not distributed except as the withdrawal or death of some member of the firm entitles him or his heirs to demand his share. This policy has not only made the firm wealthy—it has made them philosophical; and the partner who told me of it added that for more than a century they had never had an unprofitable decade. Now I don't know the facts but I rather think that the same thing might be said of the cotton textile industry of New England, taken as a whole. It has its ups and downs. When it is going down many of us come to feel that it will never turn upward again, and when it starts upward there are always some and often many who become the victims of their own enthusiasm because they can see no end to the expansion. Just now we are going through one of the 'downs.' It has lasted a little longer than usual, and a few are so depressed that they have become morbidly self conscious. They remind me of the story of the man who had a long bushy beard that came well below his waist. He was a merchant in a small country town, and one day as he stood in front of his store whittling a stick a small boy came up to him and said, 'Mister, will you tell me whether when you go to bed you sleep with your beard inside or outside the covers?' He thought a moment and answered, 'Well, sonny, I can't tell you. I never noticed—but your question interests me. Tonight when I turn in I will make a note of what I do with my beard and if you are around here tomorrow I will tell you.'

"So that night when he retired he first put the beard outside the covers, only to find that he was uncomfortable. So he changed and put it inside the covers, but that did not give him any greater comfort. Then he put put it outside again. Then inside—outside—inside—but none of the changes brought him relief, and he commenced to say to himself: 'What's the matter with me? All my life I have had this beard, and was not even conscious of it. Now I can't sleep for thinking of it.'

"Worried and nervous he continued to thrash about in the bed until he was almost hysterical and got up determined to shave the beard off and be done with it. But when he tried to use his old razor, he was so excited and his hand trembled so violently that he cut his throat and died.

"And may I tell you that the story has a lesson for many New England manufacturers? They were formerly unconscious of their disadvantages, if indeed they had many, but they have latterly become so conscious of what they regard as handicaps that they are gradually killing their business by proclaiming the disadvantages under which they think they labor.

"Well, I am not a cotton manufacturer myself, but if I were I would try to build up and extend my business by advertising. Perhaps you may say that this is self-interested advice, for I am a newspaper publisher and might perhaps increase my limited income if the textile industry advertised more. But I can't help that, and I repeat my advice. You must advertise more if you want your business to grow. You are engaged in an industry in which brands or trade names could be made enormously valuable. But how few cotton fabrics there are that are internationally, or even nationally, known—by names that have become household words, like 'Sapolio,' 'Royal Baking Powder,' 'Lux,' 'Castoria,' 'Listerine,' and a hundred others that you all can recall. Wamsutta muslins, Pepperell drills, Fruit of the Loom, and Cannon cloth are about the only products of the cotton textile industry whose names I can recollect without hard thinking, whereas the word Rayon which is less than three years old has already become so well known that the demand for it is far in excess of the supply. The subject is a big one, and I could talk about it all night but I won't, for although repetition is an essential of effective advertising I would not weary you.

"But there is just one other aspect of your problem to which I am impelled to call your attention, because I hear so much of your geographical remoteness from the cotton fields and the high wages you are compelled to pay. As to your geographical remoteness from the cotton fields, I admit it—but what does it amount to?

"Suppose your cotton costs you a cent a pound more than your southern competitors find it necessary to pay for their raw material. It doesn't, but what does a cent a pound for raw cotton mean in the cost of the goods made from it?

"I have been told that upon an average one pound of cotton is converted into five yards of cloth. Therefore the increased cost of your cotton will be fully recovered if you get only one-fifth of a cent more per yard for the goods made. Do you suppose that this slight addition to your selling price would at all restrict the sale of a well made and well advertised brand of goods? I don't, and I doubt if you will, if you consider the matter carefully and philosophically.

"And your labor. It is true that your wage scale is higher and that your hours are shorter, but just think for a moment. Within a radius of 600 miles from this hotel —hardly more than a night's journey on a fast train— over one-half the population of the United States is to be found. Just take a map and a pair of compasses and draw a semi-circle whose hub is Boston, and whose radius is 600 miles in length. You will find that it includes Washington on the south, Pittsburgh on the south-west, Cleveland on the west, and Toronto and Montreal on the north—within its boundaries more than 55,000,000 people reside. They are by far the richest half of our population in respect to their earning power, as well as their accumulated wealth.

"Because their wages are the highest paid in this country their standards of living and their purchasing power are corresponding high, and they are able to buy the goods you make if you will but practice the art of salesmanship and put your wares attractively before them.

"I assume that everyone in New England reads the *Atlantic Monthly*. You ought to, for it is one of the best magazines published in this or any other country.

"In the April number there is an article upon the 'Dilemma of Thrift,' by William T. Foster and Waddill Catchings. It is worth your attention as a cogent demonstration of the fact that high wages work a corresponding increase in the purchasing power of those to whom they are paid, and that business ceases to expand when wages are reduced.

"In 'Julius Caesar,' Shakespeare makes Cassius say: 'The fault, dear Brunus, is not in our stars but in ourselves that we are underlings.' I have been reminded of the quotation many times during the last two or three years, as I have listened to the lamentations of the New England cotton manufacturers over their lost markets and disappearing profits.

"I believe that you do yourselves an injustice, my friends, and it is out of a desire to revive the rugged and unconquerable optimism that is yours by inheritance that I have ventured to speak thus frankly to you.

"You have the equipment, the capital, the labor and the skill that are essential to success.

"Within a night's journey you have half the population of the richest country in the world. Their wants are insatiable, and they are abundantly able to buy what they fancy.

"As a southern man I have too much faith in and dread of Yankee resourcefulness to believe that you will much longer remain blind to the opportunities that are yours, and it is for this reason that I predict an early return of good times in the great industry that you represent."

The concluding feature of the program was a humorous address by Neal O'Hara of Boston, entitled "Humoresque." After a rising vote of thanks to Mr. Price, the convention was adjourned.

The Boston Textile Show

The stories of textile exhibitions naturally have a similarity of tone, and it is usually customary to refer to each of them as the best and most successful of its kind; such expressions becoming more or less commonplace in the language of the reporter.

It does not require an exhaustive, deliberative analysis, however, to provide grounds for words of commendation on the International Textile Exhibition, more commonly and generally known as the Boston Show, which was held at Mechanics Building in Boston during the week of April 12.

The previous Boston show was held in October, 1923, about two and a half years ago, so that the period intervening between the exhibits was somewhat longer than the customary two years.. The reason for this change in date, and the results of it, may be attributed to a desire to permit longer time for the development of new ideas, or to a change of season insofar as weather is concerned, or both. At any rate, either surmise might prove to be the correct one, because during the entire week ideal weather for the exhibition prevailed, and an interested observer saw more of genuine appeal from the standpoint of new refinement and development than has been apparent in some time.

It was evident, though, that the attendance of mill men was not up to the standard of some previous exhibitions, the absence of the usual large contingent from the South being noticeable, and affecting the total of interested visitors.

Except in a few cases, notably the concessionaires for soft drinks and other refreshments, however, the definite results of any exhibition cannot be tangibly calculated during the show, but come to light later in material developments as the result of interest engendered by the displays. A canvass of some of the leading exhibitors with reference to this point, therefore, developed a number of expressions of satisfaction. And along with a smaller attendance of textile men, especially from the South, came a diminished number of disinterested onlookers.

The reason for the decreased southern attendance was universally attributed to the proximity of the dates of the Southern Textile Exposition in Greenville, South Carolina, where it is understood plans are made for the largest exhibit ever held there.

Insofar as the exhibits at the Boston Show were concerned, it was noticeable that a number of the larger manufacturers of major equipment, such as looms, spinning and preparatory machinery, maintained exhibits this time, whereas the majority of this class of machinery producers were absent from the show in 1923. In addition to these were many exhibitors showing accessories and supplies for the first time at the exhibition.

There were, as before stated, a number of interesting features in the way of new developments pertaining to the

MATHIESON Chemicals

ALKALI *and* BLEACH
for
Textile Processing

TO deal regularly with a few dependable sources of supply makes for true buying economy in the long run. Purchasing from many and scattered suppliers may effect apparent savings from time to time, but these may easily be offset several times over by uncertainties, delays and lost motion.

Year in and year out, textile processors have found Mathieson a dependable source of supply for several of their most important chemical purchases. Among "Eagle-Thistle" products, the dyer, bleacher, finisher or mercerizer has available a group of products which he uses regularly and in quantity; Mathieson Liquid Chlorine or Bleaching Powder together with Mathieson Caustic Soda (solid, flake, ground or liquid), Soda Ash, Bicarbonate of Soda, Modified Virginia Soda or Aqua Ammonia.

The consistent use of both Mathieson Alkali and Mathieson Bleach is the best insurance against processing troubles.

The MATHIESON ALKALI WORKS Inc.
250 PARK AVE. NEW YORK CITY
PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE

Caustic Soda ~ Liquid Chlorine
Bicarbonate of Soda
Anhydrous Ammonia

Soda Ash ~ Bleaching Powder
Modified Virginia Soda
Aqua Ammonia

Deal Direct with the Manufacturer

industry, both from the manufacturing standpoint, and from the power angle. The process attracting the largest amount of attention, perhaps, was that of long-draft for spinning, which was displayed in operation by several exhibitors. This idea, new in this country drew crowds around each of the booths, and the fact that it was discussed extensively at the Association meeting held on Friday of Show Week indicates the considerable amount of interest which it is receiving.

Improved methods of opening and picking cotton, high speed equipment, and refinements in manufacturing practice were among the features of interest also insofar as the cotton manufacturing aspect of the exhibition was concerned. Refined improvements in accessory lines also attracted attention.

In the basement section of Mechanics' Building were located the exhibits making up the major portion of the power department of the show, where much of interest from this standpoint awaited the visitor.

Almost a score of New England mills, through their selling houses, occupied the Talbot Hall department with displays of woven and finished fabrics, which attracted much attention.

There was no especial program for the exhibition during the week. The building opened for visitors on Monday morning, April 12th, and was closed on Saturday night, April 17th. The daily hours were from 10:00 A. M. to 10:00 P. M.

During the first two days of the week, the attendance, comparatively, was small, but on Wednesday, it was amplified, and continued good throughout the remainder of the week. Thursday and Friday were considered the biggest days from the standpoint of mill-man attendance, since the semi-annual convention of the National Association of Cotton Manufacturers on Friday drew a large number of executives to Boston, and they attended the exposition as well as the convention. The step taken by the Association in condensing their meeting into a one-day program was felt to have a salutary effect upon attendance at the show hall, for it gave the members an additional day in which to inspect the exhibits, which previously had been given over to an extra day's session of the meeting.

Chester I. Campbell had personal supervision of the exhibition again this year, and an exceptional number of commendatory expressions regarding the efficiency with which the show was handled were heard this time.

What the Southern Mills Are Doing

The sale of the Mecklenburg Mills Company's property at Charlotte, N. C., which was postponed from March 27th, was held on April 1st. All of the property was bid in on behalf of the Bondholders' Committee. It is understood that arrangements have already been made by the Bondholders' Committee for the transfer of the respective properties to new interests which anticipate operating the mills.

It is contemplated that two corporations will succeed to the ownership and operation of the properties. One corporation will acquire and operate the mill at North Charlotte, and another corporation, under the leadership of R. B. Knox, of Newton, will be formed to acquire and operate the remaining properties at Newton.

Mr. Knox is a cotton mill man, thoroughly experienced in every phase of the business, and particularly in the manufacture of napped fabrics, in which the corporation will be engaged. He is a native of North Carolina and was for many years intimately associated with H. B. Heath in the management of cotton mills, which consistently showed progress and satisfactory earnings. Mr. Knox expects to have associated with him in the ownership and management of the property, substantial out-of-town interests, who will be represented on the Board of Directors by H. W. Anderson, who will also be the president of the corporation.

The Roseboro (N. C.) Mills, Inc., have awarded the contracts for a cotton yarn mill, 100x250 feet, of brick and steel construction, to cost $40,000. Five thousand spindles and an electric power plant will be installed. R. C. Biberstein, of Charlotte, N. C., is architect-engineer.

Announcement of the definite plans of the Fort Mill (S. C.) Mfg. Co., to discontinue the manufacture of ginghams in its mill No. 1 and the undertaking of the manufacture of wide sheeting, together with the establishment of a bleachery, has been announced by George Fish, recently elected vice-president of the company. The immediate undertaking will be the installation of new machinery at a cost of $400,000.

The Monarch Mills, at Union, S. C., are erecting a church, to cost $40,000.

Dallas Cotton Mills, Dallas, Tex., have purchased 20 additional Draper looms and the necessary auxiliary equipment. The mill village is also being thoroughly renovated and painted.

The San Antonio Cotton Mills, at Kingsville, Tex., are reported to be planning an addition to take care of increased business; $50,000 will be expended in new machinery.

It is reported that R. D. Kennedy, of Chicago, will move machinery and equipment from an eastern mill to Stillwater, Okla.

Thirty-six deiveries of drawing made by the Saco-Lowell Shops are being installed by the Wellman Cotton Mill Co., Athens, Ala. They are also installing equipment for double carding.

A two-story building, 60x110 feet, is being erected by the Lowe Manufacturing Co., Huntsville, Ala. It will be used by the beaming and slashing departments.

Contract for the building of an addition to the plant of the Gibson Mfg. Co., Concord, N. C., has been let to J. A. Gardner Co., of Charlotte, N. C. Bids were received in the office of J. E. Sirrine & Co., for the addition, which will contain 20,000 square feet of floor space.

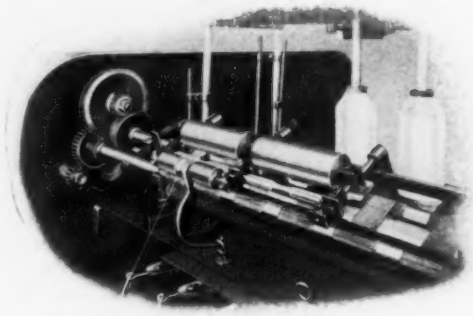
The Corinth (Miss.) Mills are moving their machinery, which has been idle for sime time, to a new building, where it will be put in operation as soon as the building is ready.

The recently completed steam plant of the Balfour (N. C.) Cotton Mills is now in operation. This plant cost $125,000.

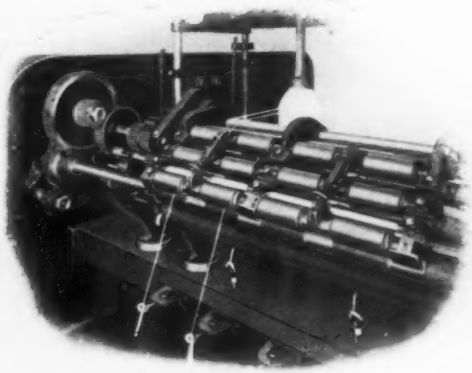
The Spencer Mountain Cotton Mills plant, Gastonia, N. C., property and water rights were sold recently to the Wateree Power Co., which is a J. B. Duke interest, according to an announcement made by W. T. Love and associates. The mill will continue to operate under present management.

SACO-LOWELL

LARGEST MANUFACTURERS OF TEXTILE MACHINERY IN AMERICA



Le Blan-Roth Long Draft Spinning



Saco-Lowell 4-Roll Long Draft Spinning

Long Draft Spinning

SACO-LOWELL 4-ROLL SYSTEM

and

LE BLAN-ROTH SYSTEM

(*Patent Pending*)

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Charlotte, N. C.

Branch Southern Offices:
Greenville, South Carolina
and
Atlanta, Georgia

Mexican Office:
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Mexico, D. F., Mexico

Canadian Representative:
Ross Whitehead & Co., Ltd.
285 Beaver Hall Hill
Montreal, Canada

The contract for the furnishing and installing of an electrical system has been let by Aiken Mills, Bath, S. C., to the Young Electric Works. This will include electricity for the entire mill village of 206 houses.

The Universal Winding Co. has received orders from the Kenneth Cotton Mills, Walhalla, S. C., for winders for winding rayon for weaving.

The Standard-Coosa-Thatcher Co., Chattanooga, Tenn., has recently placed orders with the Textile Finishing Machinery Co. for a large warp mercerizing machine and other equipment to be run in connection with it, such as winders, boiling-out machines, tranverse folders, coilers, etc.

Orders have been placed with the Universal Winding Co., by the Warlick Mills, Newton, N. C., for rayon winding equipment.

It is announced that a large addition will be made to Langdale Mill of the West Point Mfg. Co., at Langdale, Ala. The increase will be a weave shed to be located at the north end of the building, where the mill offices are now located. The new building will be 325 feet by 123 feet, and will provide floor space for 350 looms. The West Point Iron Works has the contract for the construction.

According to report, the Monticello Cotton Mills, Monticello, Ark., will expend $250,000 for the erection of a concrete and steel building in which they will install 4,500 additional spindles. Lockwood, Greene & Co. are the engineers.

Approximately 50 modern homes are to be built by F. T. Schuler and the Coosa Land Co., in the vicinity of the new mill of the Sauquoit Spinning Co. of Alabama, Gadsden, Ala. The new 20,000-spindle mill is now under construction and it is expected that other property owners near the mill will also build houses for the use of the employes.

Twisters and looms from the Essex Mills, Passaic, N. J., are to be moved to Cedartown, Ga., and installed in the Paragon Mill of the Goodyear Tire & Rubber Co.

Work on the extension to the cotton cleaning building at the Swift Mfg. Co., Columbus, Ga., is now under way and it is expected that the new addition will be completed in sixty days. The cost of the addition will be approximately $15,000.

It is rumored that a new cotton mill is to be located at La Grange, Ga., in the near future at an approximate cost of $1,000,000. Work is nearing completion on the new mill which is being erected by Valley Mills. This addition will cost approximately $300,000 and is expected to be in operation within six weeks.

Unity Spinning Mills, La Grange, Ga., is adding a plant to handle coarse yarns. The engineer's schedule calls for a mill building 132x217 ft., six warehouses, and an opening room and cottages for employees. The total cost of construction will amount to $400,000.

Construction on the new addition for McIntosh Mills, Newnan, Ga., is nearing completion, and the building is expected to be ready for operation by July 1st. Twenty-seven new cottages are also nearing completion. When the addition is completed the mill will have 18,000 spindles making white and novelty yarns.

The erection of a large new office building has just been completed by the Tallapoosa (Ga.) Mills.

The Mills Mfg. Co., Greenville, S. C., has let the contract for an opener room. The new building will provide 7,500 square feet of floor space and will be of concrete, two stories in height. J. E. Sirrine & Co. are the engineers.

According to report, Borden Mills, Inc., Kingsport, Tenn., will establish two additional units. George H. Hughes is manager.

The New England Mill Situation.

A more optimistic sentiment prevails among New England cotton manufacturers than has been noted in some years. It found expression at the recent meeting of the National Association of Cotton Manufacturers in Boston, and can easily be detected by those coming in contact with mill men and comparing their feelings with those current in the past few years. The new hope rests largely upon the gains that have been made in merchandising and not upon any very material gains noted in the occupation of the industry.

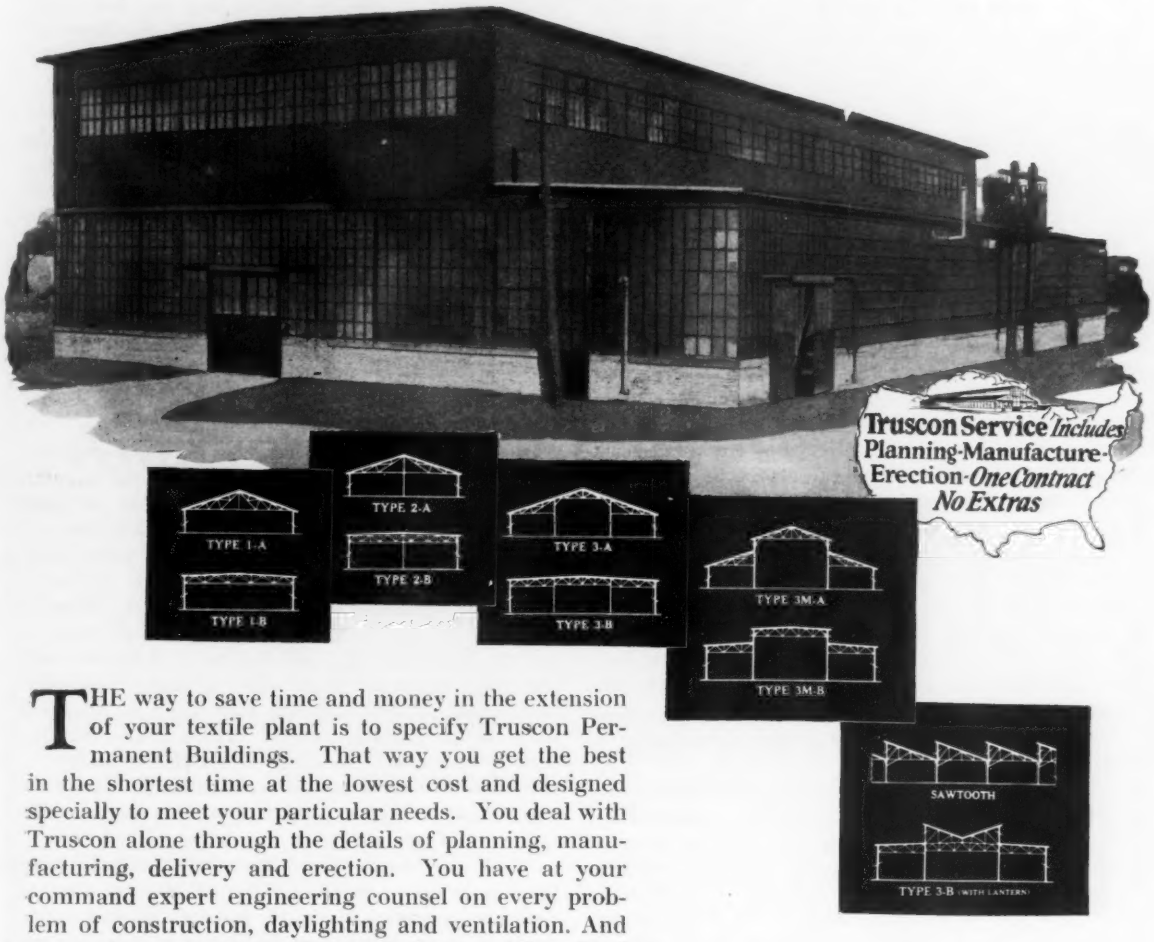
Production in the cotton mills is being curtailed once more, and there are still very many bad spots in the financial structure of some corporations. Nevertheless there has been a substantial measure of progress, and satisfaction is found in the fact that New England is no longer standing alone in the conviction that overproduction, high cotton, and bad distribution, are serious barriers to profitable manufacturing. There have been fewer labor troubles to contend with and investors have undoubtedly ceased to hamper manufacturers by the baiting of overtaxation and constant encouragement to so-called welfare legislation.

In Massachusetts it has been found impracticable to bring about any modification of short hour legislation on the books, but it is considered very doubtful if it would now be possible to enact the short hour law now restricting production so greatly in that commonwealth. On the other hand, there is a reasonable certainty that neither Rhode Island nor New Hampshire legislatures can be prevailed upon to adopt the short hour legislation urged upon them to meet the conditions laid down in the neighboring Bay State. Popular approval of anything that seeks to restrict textile production is not so readily obtained as it was and this is one underlying cause for the optimism felt concerning the future.

A great deal of interest is taken in the propositions being advanced to curtail production in southern mills. It is contended that over $100,000,000 has gone out of New England in recent years to enhance the productive capacity of the South so that any interest shown here does not lack selfishness. Mills in the South owned by New England and southern interests have been operated day and night to keep production costs down and to supply the market. It is now contended that market demands have fallen and with raw cotton high and cloths low there is a lack of profit margin in the business.

Curtailment of overtime operations has been urged all this season, and has not been adopted, it is stated, because of a lack of agreement among manufacturers. To bring about an agreement, a meeting of manufacturers and merchants held at Spartanburg on April 16, brought together representative New England printers and many of the commission house agents from New York. This meeting proved to be one of the outstanding features of recent cotton mill history, and, while the outcome rests largely upon what may be done through future co-operation, it appears to New Englanders to be an admission that a remedy for the ills of the industry is being sought in regulated control of the output.

Low Cost Fireproof Construction for Textile Mills, Dye Plants, Weave Sheds, Warehouses



THE way to save time and money in the extension of your textile plant is to specify Truscon Permanent Buildings. That way you get the best in the shortest time at the lowest cost and designed specially to meet your particular needs. You deal with Truscon alone through the details of planning, manufacturing, delivery and erection. You have at your command expert engineering counsel on every problem of construction, daylighting and ventilation. And you get a permanent, fireproof Copper Alloy Steel Building at a cost far below any other permanent construction. It will pay you to come to Truscon.

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With your Truscon Building you can have a "Ferrodeck"---the most economical light-weight, non-burning roof construction. Truscon "Ferrodeck" is a built-up composition roofing, waterproofed insulated to any necessary degree on steel plates. For permanence, durability, economy, "Ferrodeck" cannot be equalled.

Plans to insure control of this character are not believed to be workable in the present condition of mill management, nevertheless, the recognition of its possibility has aroused wider comment in New England than anything affecting production in years. New England has failed time and again in plans designed to bring about united curtailment of production in centers like Fall River, New Bedford, Rhode Island, and Boston, although management and direction have been more fully controlled than elsewhere. Failure has been due almost universally to the desire of mill managers to preserve the individuality of the mills by maintaining open and free competition for markets.

Reports at hand up to this time indicate that some sort of curtailment will be undertaken through a sort of gentlemen's agreement to cut down the output 25 per cent in mills making print cloths, sheeting drills or convertibles not now in demand. The supposed lack of a market for goods of this character was not left to chance as the merchants referred to stated that they could not see how cloth prices could be maintained for the coming summer because their own experience showed them how greatly market demands were being restricted by an overabundant supply. Should this plan of curtailment be undertaken in southern mills it will be met in New England by action on the part of individual plants.

During the past month Fall River, New Bedford, and Rhode Island mills have been cutting down production steadily. The will to do this came not from any form of agreement, however. The reasons for enforced regulation of output in this section are found in the state of finances. In Rhode Island, where three of the Knight mills have shut down, the action was taken after a new company was formed to operate the plants and found them unprofitably occupied.

In Fall River, some mills re-started operations but have again begun curtailment. This can be understood when it is remembered that plans for financial reorganization of the Seaconnet, Conanicut, Parker, and other large mills are still in abeyance. Stockholders of the Pocasset mills have been offered $20 a share for their holdings and one of the mills is closed pending action on the offer or some other move that will insure a wider market opportunity.

In Lowell, the Hamilton mills are still partly shut down after several ineffectual attempts have been made to reorganize on a lower capital basis. In New Bedford financial changes in management are not mentioned, nevertheless curtailment of production has been urged by financial factors interested in the properties.

In several instances in New England recently, operations have been increased as a consequence of changes in mill management and forms of distributing the products. The most notable change in distribution yet outlined is that announced by the Pacific mills of Lawrence. The products of these plants were sold through Lawrence & Co., commission merchants. It is now proposed to sell the goods through the commission house at lower commission costs and through more direct representation in the markets. A similar change toook place in the matter of the Tremont and Suffolk mills of Lowell, now represented by Ridley-Watts & Co. The consolidation of the Amoskeag and Parkhill mills resulted in more concentrated selling direction and economies in selling are hoped for.

But the most notable changes have been those in the distribution of the goods, as in the case of the Pepperell mills of Biddeford, Me. In this case large sums are being spent in advertising to popularize the Pepperell brands of sheetings, drills and other goods and the results thus far have been very satisfactory. So much so that larger operations are assured. This is also true of the Bates mill and the Lewiston bleachery in Maine.

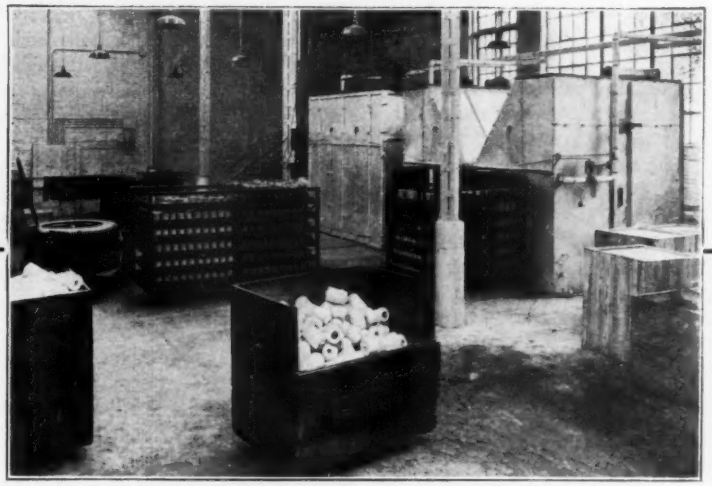
While concentrated control in management and production is relied upon to solve many of the troubles of the hour, the real optimism among manufacturers is not due to this cause. It has been shown that if the product is widely diversified and is put into the hands of the consumer at lower prices, larger mill operations become necessary. It is not to be understood from these things, however, that all New England is a unit in thinking that curtailment will solve the troubles of the cotton industry as a whole. The fact is that several of the most important factors are convinced that the volume of mill operations should not control production in any way. They say that should be regulated by the volume of demand, and demand should be created by lower prices and lower costs.

Distributing conditions throughout the country are called woefully inadequate when analyzed from the manufacturing point of view. It has been shown that Amoskeag ginghams offered for Fall on a basis of 12½ cents for 19,000 range, 32-inch cloths, make the lowest priced offering of an all-cotton fancy cloth ever known in the history of the cotton industry, yet distribution of the product is held back by the unwillingness of retailers and others to seek the goods and sell them at a profit compatible with cotton and other mill costs. How to induce retailers to carry goods of this class and offer them at reasonable prices is the problem involved. The southern manufacturer is known to be wrestling with a similar problem in the matter of distributing the brown sheetings, colored cottons, and other lines of goods now made in southern mills at lower relative prices than ever before quoted.

While the manufacturers' agents who visited South Carolina to tell producers why curtailment was essential, were busy in meeting, it was the fact that bleached cottons produced in the South, were being sold at twice the cost of them as mills figure it, to consumers in nearby states. In the same way, there were sales of printed percales and other cottons being made in New England at more than twice manufacturers' prices to consumers living within the shadow of the mills. The excessive costs of distribution were to blame and will continue to be blamed until the mill men arouse consumers to the great charges imposed on them.

These facts have a direct bearing on the common problems now facing New England and the South. New England thinks it can meet the situation by more intensive merchandising, such as the use of chain stores, catalog houses, etc., but not until consumers are aroused. The measure of hope and improved sentiment here is, therefore, one of trusting that producers will no longer be forced to carry the unfair burden of unprofitable production for the benefit of distributors in any class.

F. J. HALE, of the Saco-Lowell Shops, was in attendance at the Boston textile show, greeting his many friends from both the East and South. He was present practically during the entire week.



Aluminum Paint Improves Lighting in Louisville Dye House

WHEN the Louisville Cotton Mills Company, Incorporated, of Louisville, Kentucky, sought an interior paint for their new dye house, they selected Aluminum Paint.

For they realized that Aluminum Paint's *coat-of-metal* would enable it to withstand the trying temperature and humidity conditions.

And they knew that the pure aluminum pigment of Aluminum Paint would hold its reflectivity in spite of fumes—ensuring a lasting improvement in lighting.

The walls, ceilings and steel framework throughout the dye-house were given two coats of Aluminum Paint.

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* * *

In your mills and dye-houses, too, Aluminum Paint will improve lighting, sanitation and appearances with a *coat-of-metal.* And it costs no more than ordinary paint.

Before you get your next bids on interior painting, write for our new illustrated booklet—"Aluminum Paint —A Step Ahead in Industrial Painting." It is the key to many upkeep economies.

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Cotton Comment.

BY H. AND B. BEER.

New Orleans, March 15, 1926.

The bearish statistical position of raw cotton was offset by unfavorable climatic conditions in the cotton region during the past month, the latter serving to sustain the market, resulting in unimportant price changes compared with the month ago.

SEASON'S INDICATED SUPPLY.

American Cotton	Bales This season	Bales Last season
World's carry-over, August 1st...	2,880,000	2,319,000
Crop, actual growth, about.....	17,230,000	14,808,000
Season's indicated supply, about..	20,110,000	17,127,000
Season's world's consumption, if..	15,000,000	14,247,000
Indicated world's carry-over, July 31st, about.....	5,110,000	2,880,000

Notwithstanding the indicated large surplus to be carried over at the close of next July, and the price of middling being about six cents, or about $30 per bale lower than it was at this time last year, private advices are to the effect that farmers are preparing to pitch another large acreage to cotton this year, weather permitting, and to increase the use of fertilizer.

FERTILIZER SALES IN COTTON STATES.

	Tons This season	Tons Last season
During March.....	1,166,391	1,416,091
For 8 months ending March 31st..	2,613,953	2,419,534

Preparations for the new crop, however, are backward, especially in the central and eastern portions of the belt, whereas at this time last year they were well advanced, which probably aided in the making of a large crop in the Mississippi Valley States and South Atlantic region last year.

Unlike one year ago, however, when there was a severe drouth in the Southwest, Texas and Oklahoma have a good season in the ground this year. Last year the crop was short in the southwest for want of sufficient moisture.

TOTAL AVERAGE RAINFALL OF TEXAS IN INCHES.

	This Season	Last Season	Nor.
For March	4.88	0.65	2.06
For 6 Months, October to March, inclusive	17.22	5.61	12.84

This is a big asset for the Southwest, where the acreage is large, in event of it being favored with good weather during the remainder of the season.

As to the weevil, Washington recently reported as follows: "A relatively light infestation of cotton boll weevils in Southeastern States and Texas, and a medium to heavy infestation in the Mississippi Valley territory, especially in Louisiana, is indicated by the department of agriculture as result of a count of the boll weevils surviving the Winter."

The future course of the market will likely be governed mainly by climatic developments and doings of the weevil. If good weather is experienced from now on, and if weevil are not numerous or destructive, a large crop may be made, in which case values would likely decline, but if the weather remains unfavorable, or if weevil become numerous and destructive, probably only a moderate crop may be the result, in which event values would likely be sustained, perhaps work somewhat higher.

Meanwhile there is no appreciable improvement in the demand for spot cotton or cotton goods, which is reflected in the continuance of small exports from the United States since August 1st, 6,546,000 bales compared with 7,063,000 to even date last year.

Recently some encouragement was derived from Lancashire, England, spinners deciding to increase working time, in mills using American cotton, 4 1/2 hours per week, or from 30 1/2 to 35 hours weekly, as well as from the record consumption of raw cotton in the United States during March, but stocks of raw cotton in American mills and in the South remain large.

CENSUS REPORT.

United States—	This season	Last season
Consumption inc. linters, March..	695,000	642,000
For 8 mos, ending March 31st...	4,880,000	4,502,000
Mill stocks, March 31st.....	1,768,000	1,634,000
Stocks in public storage, Mar. 31..	4,162,000	2,028,000
Total stock, U. S., March 31.....	5,930,000	3,662,000
Active spindles during March....	33,233,000	33,217,000

Viewing the situation from every angle, we see nothing bullish in the situation at present. Consumption promises to be large, but the supply is larger than prospective requirements. There is a promise of another large acreage this year, and the probability of an increase in the use of fertilizer. Therefore, aside of the possibility of a revival in the trade demand, there is nothing to rely upon but the possibility of more rain during April or a wet May to bring about an advance of importance, whereas the elements are a very uncertain thing to rely upon, since the weather may be good in the future.

The Naumekeag Steam Cotton Company, Salem, Mass., have erected on the roof of their spinning mill, the largest aeronautical ground sign in New England, with a view to directing pilots of flying machines and giving them bearings or location. Cemented on the roof are the words "Salem, Mass." and "Naumkeag Pequot," with an arrow of immense size pointing to the letter "N," indicating the magnetic north. The letters of the words practically cover the whole roof, which is 800x150 feet wide, and are discernible at a height of 10,000 feet. All of the letters are of plain type and in block form. To make the sign as visible as possible, a special composition of cement and hydrated lime was used, giving a cream-like color against the background of a tar and gravel roof. The letters in the sign are each 30 feet high and from six to ten feet wide, and the arrow is 110 feet long and from 10 to 15 feet wide. Plans are being made to install a system of lights to make the words discernible at night as well as during the day.

J. E. Rhoads & Sons, 35 North Sixth St., Philadelphia, Pa., are distributing the seventh edition of "Rhoads Belt User's Book," which contains useful information, rules and suggestions regarding the use of leather belting. An addition in the present edition is an "Arc of Contact Chart," contributed by the company's experimental laboratory, which replaces the "Arc of Contact Rules" formerly used in the book.

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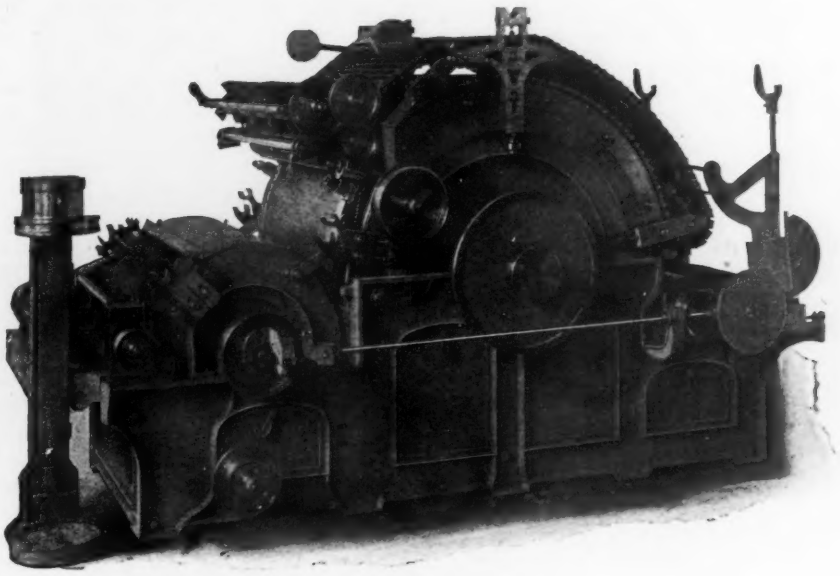
COTTON MILL MACHINERY



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OUR Cards are extensively used, and have won for themselves a high reputation for the quality and quantity of work they will do, the small percentage of waste made and their durability and simplicity.

Amongst the many features and points of special merit embodied in the machines which it would pay you to investigate are:

The Rigid Bend, mathematically correct at all stages of wear of the wire.

Perfect concentricity of Flats to Cylinder.

Arrangement for adjusting Flats whereby accuracy to the thousandth part of an inch is obtained.

Adjustable Cylinder Pedestals and Bearings.

Better quality of yarn made from the same cotton, or equally good yarn made from cheaper cotton.

Special bulletin sent on request.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

J. C. BRANNAN, overseer carding and spinning at the Aeworth Mills, Aeworth, Ga., has resigned this position to accept a position as superintendent of the Ernestine Cotton Mills, Boaz, Ala.

J. F. LEHMAN is overseer of carding and spinning at the new Stroud-Holcombe Textile Mills, Birmingham, Ala.

D. E. TRASK has resigned his position in charge of the carding department of the mills of the Canadian Manhasset Cotton Company, St. Hyacinthe, Quebec, Canada.

THOMAS C. ADAMS, has become sales manager of the Ferguson Gear Company, Gastonia, N. C. Mr. Adams recently resigned as manager of the Manville-Jenckes Company, High Shoals, N. C., to accept the new position.

MAURICE HART, who has been with the Morse Chain Company for several years, in the production department, has been appointed manager of the Buffalo office which has been opened in the Elliott Square Building, Buffalo, N. Y.

HAROLD P. FAUST, who has been connected with the Ciba Company, Inc., of New York City, has been made superintendent of the company's new laboratory at Greensboro, N. C.

FREDERICK H. LOVENBERG, of the New York sales office of the Mathieson Alkali Works, has been placed in charge of a St. Louis district sales office.

WILLIAM A. FIELD, formerly located in St. Louis territory, has been appointed Chicago district sales manager for the Mathieson Alkali Works. The Chicago office is located at 310 South Michigan avenue.

FRED H. WHITE, Realty Building, Charlottle, N. C., has been appointed southern selling agent for Benjamin Eastwood Company, Paterson, N. J., manufacturers of Eastwood winders for silk, rayon and cotton; also other silk and special machinery.

JOHN L. DAVIDSON has resigned as manager and superintendent of the Savona Manufacturing Company, Charlotte.

JAMES C. CULLEN, of Philadelphia, Pa., has become overseer of finishing at the new Piedmont Plush Mills, Greenville, S. C.

F. GORDON COBB, general maanger of the Lancaster Cotton Mills, Lancaster, S. C., and secretary of the Southern Textile Association, has been elected a vice-president of the Lancaster Mills.

CHARLES PHEIFER, of the Orinoka Mills, Philadelphia, Pa., has accepted the position of overseer of weaving at the new Piedmont Plush Mills, Greenville, S. C.

PASCHAL S. BOYD, who for many years has been superintendent of the Mooresville Cotton Mills, Mooresville, N. C., has been elected vice-president and general manager.

JOHN M. KENNET, who has been overseer of weaving and finishing at the Mooresville Cotton Mills, Mooresville, N. C., has been promoted to general superintendent.

OSBERT HUGHES, formerly with the J. L. Davidson Company, Philadelphia, textile designers, has accepted a position as textile designer with the Pomona Mills, Inc., Greensboro, N. C.

W. L. BARBEE has resigned as overseer of carding at the Johnston Manufacturing Company, North Charlotte, N. C., and accepted a similar position with the Clover Cotton Mill Company, Clover, S. C.

ROBERT E. NAUMBURG, for the past five years in charge of the patent and research department of the Saco-Lowell Shops, has opened an office as consulting patent engineer, specializing in the development of inventions in general and textile inventions in particular.

FRANZ ROESSLER, chairman of the Board of Directors and one of the founders of the Roessler & Hasslacher Chemical Co., died on March 24. He was a man of sterling worth, and had many friends in the industry.

J. O. EPPS has resigned as overseer of carding and spinning at the Johnston Manufacturing Company, North Charlotte, to accept a position at the Carolina Textile Corporation, Dillon, S. C.

W. G. HINES has resigned as overseer carding and spinning at the Oakboro Cotton Mills, Oakboro, N. C., to become overseer carding at the Norwood Manufacturing Company, Norwood, N. C.

J. J. HYDER has resigned as overseer weaving at the Lanett (Ala.) Mills of the West Point Manufacturing Company.

M. A. RAWLINSON, for 13 years agent of the Tremont and Suffolk Mills at Lowell, Mass., has resigned and will retire from active mill work. W. W. Rawlinson, son of the retiring agent, will continue as superintendent at these mills.

HARRY GREENLAW, formerly agent for the Grosvenordale Company, of Connecticut, and later identified with the Whitin interests in the Blackstone Valley, has been appointed agent of the Tremont and Suffolk Mills at Lowell, Mass., succeeding Mr. Rawlinson.

GEORGE B. CLEMENCE, known to very many dyers and bleachers in the textile trade, for many years soap and silicate of soda salesman for the Philadelphia Quartz Company, died at Friends' Hospital, Frankford, Philadelphia, Easter Sunday, April 4th, in his 84th year. Mr. Clemence has been retired from active traveling for the last five or six years.

C. A. JOHNSON, dyer and chemist at Roswell Mills, Inc., Roswell, Ga., died on March 15th at the age of 73 years.

GUY B. HUNTER, vice-president of the Hunter Manufacturing and Commission Company, New York, has been elected president of the company to succeed the late J. B. Reeves. Mr. Hunter has been connected with the Hunter Manufacturing Company for many years and is widely and favorably known in the textile trades. He is a son of the first president and founder of the company.

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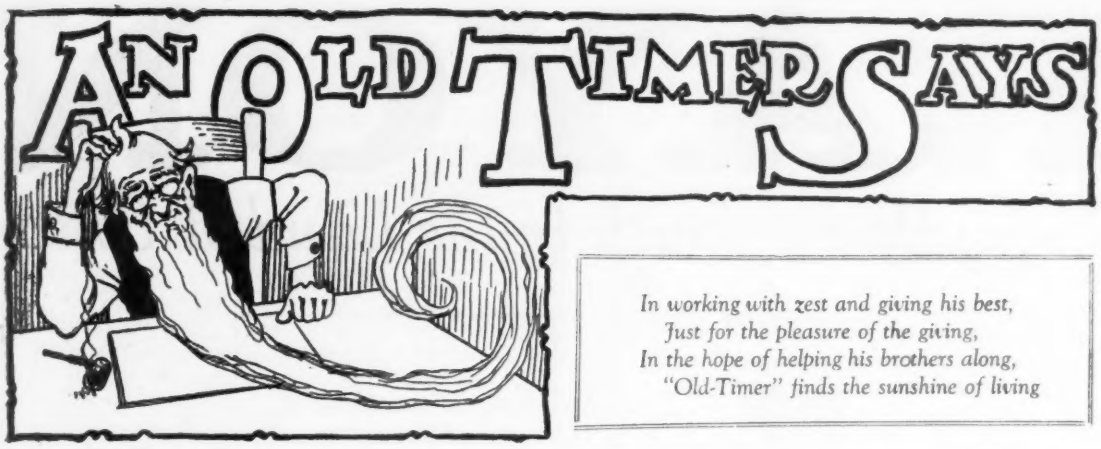


In working with zest and giving his best,
Just for the pleasure of the giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

I was in hopes that Jim would be in the mill when I drove over to see him last week so I could slip up on him, before he knew I was there, but the first man I saw when I got out of the car in front of the office was my old friend, Jim.

"Hello, there! Old Timer. Why didn't you let me know you were coming?"

"Didn't have time, Jim. In fact, I did not know that I would get a chance to come until this morning, so here I am."

"Well, how's things over your way, Old Timer?"

"About as usual, Jim—we are running along very nicely, and the boss says we are doing a little more than 'swapping' an old dollar for a new one. You know when the margin of profit is so small it sure puts it up to the overseers and superintendents to save every nickle we can, so the mill will continue to run and pay day come around as usual—in fact, Jim, that old man 'Pay Day' has been a mighty good friend to most of us. I do not see how I could hardly get along without him."

"Same here, Old Timer—I am watching the little things more these days than I ever have before, as I realize that the day has come when a man can't hold a job just because he knows how to set up his machine and get a fairly good production at a reasonable cost. That kind of man today is classed as a 'medium' overseer or superintendent, and is usually drawing a 'medium' salary."

"You sure have the right idea, Jim, and that is the reason why you are not running that little card room you had a few years ago."

"Knock out that old pipe, Old Timer, and let's go in the mill—but before we do, I want to make a request."

"Sure, Jim—shoot!"

"Well, we have just been talking about the importance of *little* things, so suppose you don't show me any shafting falling down, or things like that, but confine yourself to some of those *little* things we have been discussing."

* * *

"Pretty nice opening room you have here, Jim. You sure have done something to it since the last time I was here—what is it?"

"Well, Old Timer, I just decided that an opening or picker room should be kept cleaner, if possible, than any other part of the mill, so by gum, I stopped the thing off and had all the men up and explained to them that, first of all, when a man dropped white cotton on the floor he must right then pick it up; that the intermediate and breaker laps must be handled just as carefully as the finisher laps; that it simply was a disgrace for a man to cut loose and spit all over the place where we have to work when there was a cuspidor put in there for him to use; and that we are going to stop off Saturday and clean every machine from top to bottom. Then I was going not only to expect them to keep them clean, but I was going to *see* that they did so.

"Bless my soul! Old Timer, it looked like the whole bunch got the spirit, so to speak, and each fellow is now taking a pride in his machines and his work."

"Well, Jim, I knew there had been a big change of some kind since I was here last."

"No, Old Timer, not a big change; it just shows you how big one of these *little* things you were talking about can show up."

"Do you weigh your intermediate laps, Jim?"

"Sure I do; and I keep my intermediates in just as good shape as my finishers; that's why you don't see that finisher man setting back any laps to be run over."

"Darn! Jim, you people must be making some money. I see you have put in new humidifiers, too, since I was here."

"Nope, Old Timer, we just put a little elbow grease on the ones we had, and because they are all running and clean you notice them, where you did not notice them before.

"You know some of them had not run in so long I could not get the strainers out; they had rusted and stuck to the pipe.

"The average card room does not use the humidifiers they have, so I just decided that I would give mine a good fair trial, and if the blamed things were not any good I would throw them out.

"I hung one of my hygrometers outside of the window so I could tell whether the outside air was damp or dry. When it is damp outside I cut them off; when it is dry outside I run them. That was the simplest way I knew how to reason it out, and let me tell you, Old Timer, the results sure opened my eyes. I have more regular work—my tensions don't give me so much trouble—

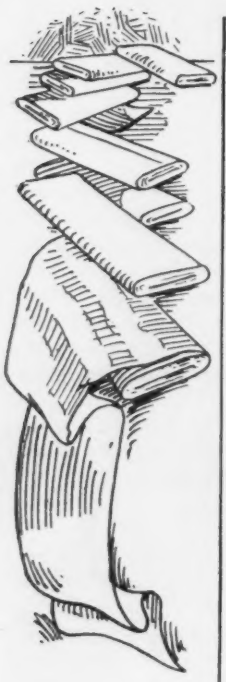
"Sure, Jim! Any fool knows that—but if you will just please explain to me why so many carders all over the country don't pay one particle of attention to their humidifiers after the mill has spent the money to put them in—

"Well, it's just beyond me."

"No it's not Old Timer—don't you remember that

RAYON

Away Down South in the Land of Cotton



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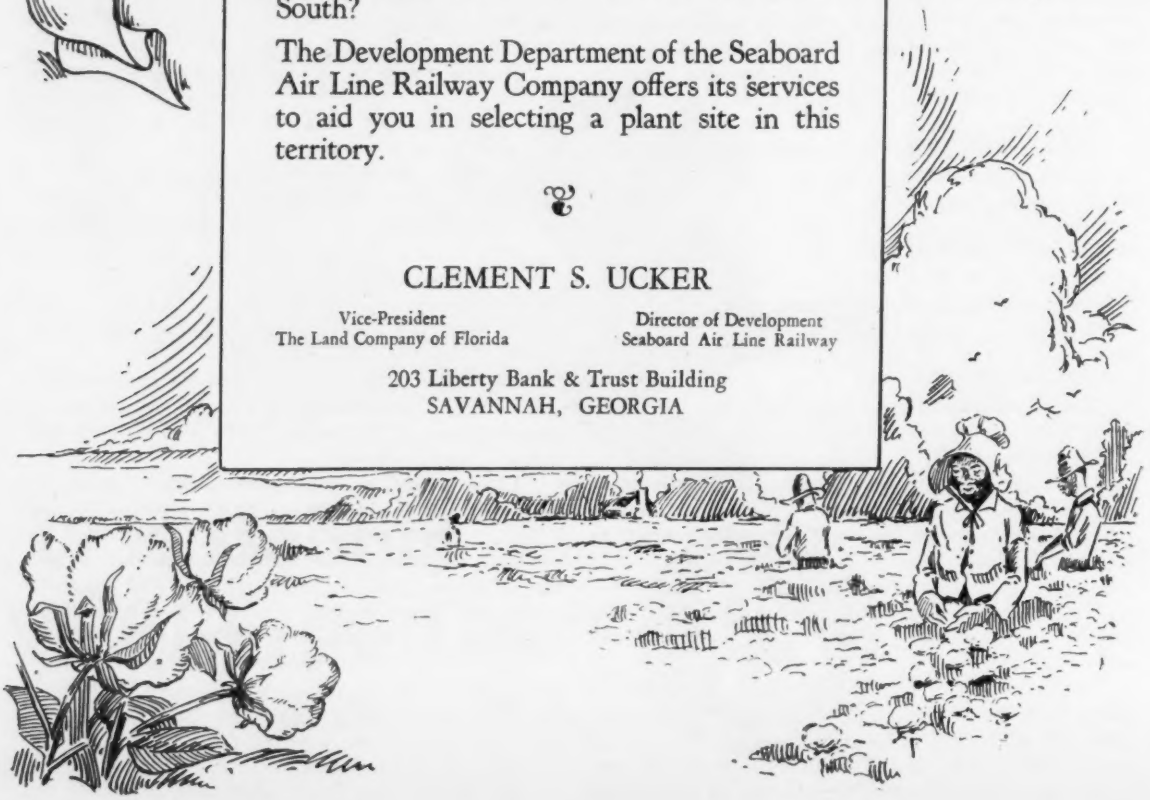

CLEMENT S. UCKER

Vice-President
The Land Company of Florida

Director of Development
Seaboard Air Line Railway

203 Liberty Bank & Trust Building
SAVANNAH, GEORGIA

long lecture you gave me one night about a man not doing what he knows how to do. That it was not the overseer or superintendent who *knew* the most who had the biggest jobs every time, but usually the man who would run his job like he knew it *should* be run.

"Little things—little things—confound if I don't almost believe sometimes that the *little* things are bigger than the big things—"

"What's that Jim?"

"Oh! nothing. I just don't understand how some of these overseers who claim to have all the education and know all about square root and three root—"

"You mean cube root Jim."

"Well, whatever you call it, I claim that some of them should learn something about the *little* things."

"How in the world did you get all these flats cleaned out Jim?

"I have been looking for a machine to clean out flats, but I have never found one yet. That machine we bought from England made a little start toward cleaning them out, but the carder soon put it aside, saying it was no good.

"Your flats certainly look good Jim—what have you done to them?"

"I cleaned them out."

"Now don't get smart Jim! If you have found a way to keep those flats clean and don't care to let the secret out, then that is perfectly all right—"

"I told you Old Timer that I just cleaned them out."

"Yes, I heard you the first time."

"There is no secret about it at all, Old Timer. I just decided I would clean them all out like most carders clean one out occasionally and then I would make my men *keep* them cleaned out.

"You know the average, in fact the majority of carders simply let them go from bad to worse because no one has ever found an easy way to clean them.

"Another one of those little things, Old Timer. All it takes to keep them clean is to put in the same system I explained to you about the picker room, then see that the system *works*."

* * *

(Editor's Note.—A continuation of Old Timer's trip through Jim's mill will be found in June COTTON.)

The Mathieson Alkali Works (Inc.), of New York City, has completed arrangements with the Fields Point Manufacturing Corporation of Providence, R. I., which will afford the latter corporation the general support and extensive resources of the Mathieson Alkali Works, for the benefit and service of the New England customers of both companies.

Effective April 1st, 1926, Daniel Townsend, president of the Fields Point Manufacturing Corporation, took charge of the sales of both companies' products in the New England territory, under the direction of the Mathieson General Sales Offices, 250 Park avenue, New York.

New England District Sales Offices will be maintained as before at 911 Rhode Island Hospital Trust Building, Providence, R. I.

Announcement is made by the Liberty Coppersmithing Company, Philadelphia, Pa., that H. J. Filliaux and Herbert G. Guy are no longer connected with that company.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

Submits a Slasher Problem.

Editor Cotton:

Here is an unsolved problem for your discussion section. If some of your contributors can furnish the correct answer I am sure it will be appreciated by many other mill men besides ourselves.

In placing starch and sizing material in a kettle, assuming that the weight of the solids is 100 pounds, what per cent of the 100 pounds goes into or on the yarn, and what per cent is lost?

Chafing on the slasher or elsewhere, may cause a small loss, but with this we are not much concerned. What we would like to know is what portion of a size mixing disappears.

Experiments made by some mills would seem to indicate that for every 100 pounds of starch, tallow and compound put into a kettle, only about 75 per cent of this material goes into or on the yarn, which would indicate that the mixture is quite volatile.

Heretofore we have assumed that with the use of corn starch each pound put into the kettle would find its way to the yarn (allowing, of course, the small per cent for waste and chafing.) Contributor No. 2635.

Slack Selvages on Warper Beams.

Editor Cotton:

Referring to the request of "J. R. (Mass.)" for more discussion on slack selvages, this is a most interesting subject, at least it is to the writer, inasmuch as in my opinion, if we eliminate slack selvages and crossed ends, a slasher tender would have very little worry as to the quality of work he turned out.

"T. A. D. (Ga.)" refers chiefly to slack ends running in different parts of the beam and his advice regarding the unequal tension owing to some of the creel pegs being worn more than others is very good. Personally I think it an advisable thing to renew the whole of the creel pegs in use periodically, it is not a very expensive item and would easily pay for itself. I have been in mills and seen full spools running along with small ones. This will cause an uneven tension, also any undue irregularity in counts will have the same effect, in other words wherever there is a variation in the circumference in different parts of the beam there is sure to be a tendency for the yarn to come off slack, because in every high place on the beam, a greater length of yarn has been run from the spool, and there is hardly any alternative but for it to sag. However my experience shows that this trouble is not nearly so great or as prevalent as slack selvages, and it is for this reason that I welcome the request for more discussion and maybe after I have had my say someone will chip in with something better.

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Just a few ends sagging or running slack is taken too much for granted by a good many slasher men, and made the best of, but this should not be, and every time the attention of the warping overseer should be drawn to it, and he in turn investigate and endeavor to effect a remedy. It should be borne in mind that having passed through the slasher, these few slack threads are not done with, they are going to trouble the weaver for weeks as well as cause bad work.

As to the cause of slack selvages there are many, the most common being, crooked or badly set beam heads, beams being wider than the cylinder, the beam slipping all to one side of the cylinder so that at one side the flange is rubbing with the other perhaps a half inch away, a few ends of coarse yarn at the selvage, badly set front combs and probably many other evils that the writer may hear about in further discussion on slack selvages.

A great many New England mills are adopting a conical roller device which keeps the yarn pressed down right up to the beam flange. This I can recommend personally as I have, at the present time, nine of my warpers equipped and instructions have been given for the remainder, at the same time I would say that the human element must play a part. In better language, the operative must not leave it all to the device, but take just the usual care. I do not want to appear in any way to be advertising. I just heard about it, tried it, was satisfied and ordered more.

I shall look forward to more letters on this subject and hope that "J. R. (Mass.)," "T. A. D. (Ga.)" and "J. F. L. (Ala.)," will write again

F. F. (Mass.)

Editor Cotton:

In answering "J. R. (Mass.)" in How Other Men Manage in the February issue of Cotton, I want to say that the four principal items that help to make slack selvages on warper beams are, sprung arbors, bad beams, untrue heads, and careless warper tenders.

What causes these selvages to unwind slack? They are all wound on with the same tension, and we don't get any slack ends in the middle of the beam, we have the same spools, the same skewers, and the creel steps are the same, so leave the creel alone and come to the warper.

There is nothing in the warper that will cause the slack selvages except as some think, the uneven spacing of the

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front comb, but the slack selvage will stay with us no matter what number of ends we run, so forget the comb and come to the beam.

Now for an end to unwind slack after it has been put on at the same tension as the other ends, means that the yarn has been put on a larger diameter than the other ends, and a bent arbor, or untrue head or bad beams will cause this to happen, without taking the human element into it at this stage.

If any of these three things is the matter with the beam, the yarn will hit the side of the head a part of the revolution of the beam, and on examining the beam when there is enough yarn on it you will be able to see where the yarn has piled up making it a little larger in diameter at that end.

The warper tender, by not giving close attention to the front comb, can give the same results with a perfectly true beam.

I am running high speed warpers, 250 yards per minute, and my beams have to be perfectly true, and just as a tip to "J. R. (Mass.)" it is surprising how many iron heads I junked and replaced with steel heads when I made the change from the old warpers, but slack selvages are a thing of the past with me now. H. E. F. (CONN.)

EDITOR COTTON:

From the February issue of COTTON I notice that "J. R. (Mass.)" is having trouble with his slack selvages, and will try to help him out.

First, it is very essential to have the combs nearest the beams of even space, but there are several little things which might cause high selvages on section beams, some of which are as follows:

Some beams get smaller in diameter if they have been in use many years, and if one will measure accurately the result may be that the part of the barrel nearest the heads is just not worn as much and might measure a fraction larger. Then, if the cylinder is 54-inches and the beam is 54¼-inches, that leaves ⅛-inch on each side that gets no pressure from the cylinder, and it therefore stands to reason that, even if creel-rolls and all other things are supposedly correct these threads that do not touch the cylinder will be longer and must be taken care of.

Another place to see into is the measuring roll. If one expands the back comb a little from the old rut where the two or three outside threads may run on a new part of roll, which is naturally larger, but cannot be measured except by a fine instrument, and if larger delivers more yarn. The writer in a previous letter stated, in reply to a question on slack selvages, that he had always been able to make beams without bad selvages. If the beams are for slashing, one laced up over the other, then to do good slashing, selvages must be compact; by that I mean that no empty dents should be made at or near the selvage on the warper to do away with high places. That remedy would be all right if one were running beams off all over the top. I would suggest that "J. R." try a stunt that I have found good if running wooden pegs. Get three or four iron pegs; put these in on each side of the creel. They will naturally pull a little harder. The iron pegs must not run, but be stationary.

Another is to—if there is space in the creel—put the four selvage threads over an empty spool, the latter being above each of the four selvage ends, which will give some extra tension. MACK (GA.).

A Question on Drafting Roving.

EDITOR COTTON:

I would like to ask the contributors to the "How Other Men Manage" section if in their opinion there would be any difference in drafting roving on a spinning frame when drawn from a hard or a soft bobbin from the speeders. Assume this roving to be 6, 7 or 8 hank roving. Some fly frames make a hard frame bobbin and some a soft bobbin, and what I would like to get an opinion on is whether if we run one of each kind in together on a double roving spinning frame, both rovings having the same twist per inch, whether the winding on the bobbin would make any difference in the drafting of the strand. I would especially like to hear from "Wash (R. I.)" on this point.

C. S. F. (ALA.)

Speeds of Kirschner Beaters.

EDITOR COTTON:

In the February number of COTTON I notice that "M. C. (Mass.)" wants to hear what some of your commentators have to say about settings and speed of Kirschner carding beaters. Being very much interested myself, in pickers, I should also like to hear from some of the readers of COTTON on this subject. I am glad that "M. C." has brought this up.

I am giving you herewith our own layout for opening and pickers, hoping that it will be of some benefit to others, who will say something in return which will help me.

Our opening consists of one H. & B. bale opener, a Whitin vertical opener and three sections of Whitin C. O. B. machines, which cleans the cotton very nicely. Our lappers are H. & B. We have combination automatic feeders and breakers which have a 30-inch special beater or cylinder which makes 500 revolutions per minute and a two blade beater that makes 1400 revolutions per minute. This beater is set 3/16-inch from the feed roll.

Our intermediate lappers have a two-blade beater that makes 1200 revolutions per minute. We set this beater 3/16-inch from the feed roll. This machine has four 15-ounce laps on the apron.

Our finishers are equipped with a three-wing Kirschner carding beater which makes 900 revolutions per minute. We set these beaters ⅛-inch from the feed roll, which I think is close enough. We have tried several settings but we get the best rsults from these. We use 1-inch cotton and make from 8s to 16s hosiery yarns.

I would say that 600 revolutions per minute would be a good speed for Kirschner carding beaters on 1 15/16-inch cotton.

I shall be glad to hear from the readers of COTTON as to whether or not we are beating our cotton too much.

J. R. R. (S. C.)

EDITOR COTTON:

In reference to the discussion on speeds for Kirschner beaters that has been appearing in recent numbers of COTTON I wish to say that in my opinion a good deal depends upon the number of pickers a man has with which to supply his cards. If he has pickers enough he can af-

ford to run at a much slower speed, say 750 on 1⅛-inch peeler cotton, but if pushed it is then necessary for him to go higher to meet conditions. Personally, I much prefer a striker beater over a Kirschner beater. I believe it gives a better cleaning and a better break on the yarn.

While I am writing, allow me to say that I enjoy your COTTON. Nothing like it. Glad to see it come from the post office. O. J. (CONN.)

EDITOR COTTON:

In the February issue of COTTON I note that "M. C. (Mass.)" in referring to the wide variation of opinion of other men on speed and settings of beaters states that a three blade beater running 1200 r. p. m., would be equivalent to a two blade beater running 1800 r. p. m. I wish to state that it can only be equivalent in speed, and not in force, since in many cases it is the force of the blow that injures the stock and it is better to run a three blade beater 1200 r.p.m. than to run a two blade beater 1800 r.p.m. Suppose that a three blade or wing beater would give a force of 100 pounds each blow, then a two blade beater running 1800 r. p. m. would give a force of 150 pounds to each blow. If the speed and settings in both cases referred to had been stated we might have arrived at a better understanding of how to discuss the matter.

However, the best results that I have ever gotten from one-inch cotton was by using a three-blade beater running 1000 r. p. m., setting to feed roll 3/16-inch on finishers. At one mill the writer took charge of a card room and found a two blade beater running 1500 r. p. m. on the intermediate, using one-inch cotton, and the results were poor. This led me to know that it was even better to run a three blade beater 1000 r. p. m. than to run a two blade beater 1500 r. p. m.. D. A. D. (N. C.)

EDITOR COTTON:

In answer to the question of "M. C. (Mass.)" in the February number of COTTON concerning speed and settings for Kirschner carding beaters. First, as to speed of the Kirschner beaters on the intermediates and finishers working long staple 1 15/16-inch cotton, would say about 800 r. p. m. For a three-wing beater, setting about ⅛ to 3/16-inch from the feed roller would be a fair setting for this length cotton, and 800 r. p. m. would be a fair speed for the beaters. I have learned from experience that too close a setting to the feed roller and too high a beater speed is not good for long staple cotton as it breaks the fiber.

Another thing to consider in beater speed is the grade of cotton that is being worked. For a good grade of clean cotton it might be well not to run the beaters up to 800 revolutions per minute. I find from experience that I can clean the cotton better with the beater at a fair speed than I can with the low speed.

In giving "M. C. (Mass.)" an opinion out of my own experience, I would say for him to use his judgment in his beater speed and his settings in a way to clean his cotton. He should make as good a lap on as low a speed as he can and should notice his fan speed and keep it high enough so that when he opens the door from the outside of the machine leading into his fan, it will suck a small piece of lint, or notice the cracks of his doors to see that no sign of dust is blowing back. Another good way to find out if his fan speed is right is to open the door that has the glass, and if no cotton comes out from the whirl of the beater, his fan speed is correct, but should the cotton blow out of the glass door, the fan speed is too high or too low.

It is possible to get too much speed on the fan so that it will not have the proper suction in the cages; therefore a good lap will not be made. It has been my experience that the right fan speed has quite a bit to do with making a good lap.

I trust that this will be of some assistance to "M. C." H. R. (N. C.)

EDITOR COTTON:

The discussion started by "M. C. (Mass.)" in regard to Kirschner beaters and speeds will, I am sure, be of interest to many readers. I have had a number of years experience using Kirschner beaters, and have them at present on finishers only, where they are running at a speed of 920 r. p. m. on ⅞-inch cotton. I set these beaters to within 3/16-inch of the feed roll and am getting excellent results. I. C. (TEXAS.)

EDITOR COTTON:

I note the discussion now current regarding Kirschner beaters and speeds. We had them running in our mill up to twelve months ago, when we changed over to the two-blade beaters. We thought the Kirschner beaters were breaking the fibers. We were running then 725 r.p.m. After we made the change our breaking strength went up about 15 per cent. I don't think my superintendent will ever go back to Kirschner beaters again. We are beating about 55 beats per inch with our two-blade beaters and getting good results. We are using 1-inch cotton for our 15s, 24s and 35s yarn and 1 3/16-inch cotton for our 60 single and 60s two-ply yarn. T. H. (MASS.)

Beater Speeds and Other Comment.

EDITOR COTTON:

The discussion department contains some very interesting articles in the February, 1926, issue.

The letter entitled "Kirschner Beaters and Speeds" by "M. C. (Mass.)" is a new one on me. "M. C." puts it mildly when he says these things are surprising. To me they are astounding. The men he tells about are not forwarding the industry, they are revolutionizing it.

How this superintendent ever gets away with Kirschner beaters on intermediate and finisher pickers, running them 1200 r.p.m., on 1 15/16-inch cotton is a mystery to me. I cannot understand how 1 15/16-inch stock can be run through a carding beater in the first place. I should hate to ruin my reputation by taking a chance on anything longer than 1⅛-inch cotton. A Kirschner can be run up to 1200 r. p. m., but this is the maximum speed even for short cotton.

The only way that I can figure that a setting of 1/32-inch from the feed rolls to the beater might work all right would be by using a 3-inch feed roll on the 1-inch stock. If the feed rolls were smaller, I am afraid he would have to open up his settings to get the best results.

Regarding the article on the Termaco bobbin cleaner, by "R. E. T. (R. I.)." The Termaco works fairly well, although I am not as enthusiastic about it as "R. E. T." seems to be. The worst thing about the Termaco is, that is destroys the surface of the bobbin. I have seen bobbins

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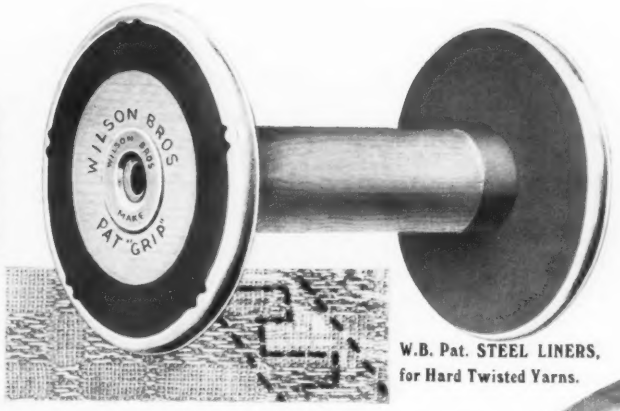

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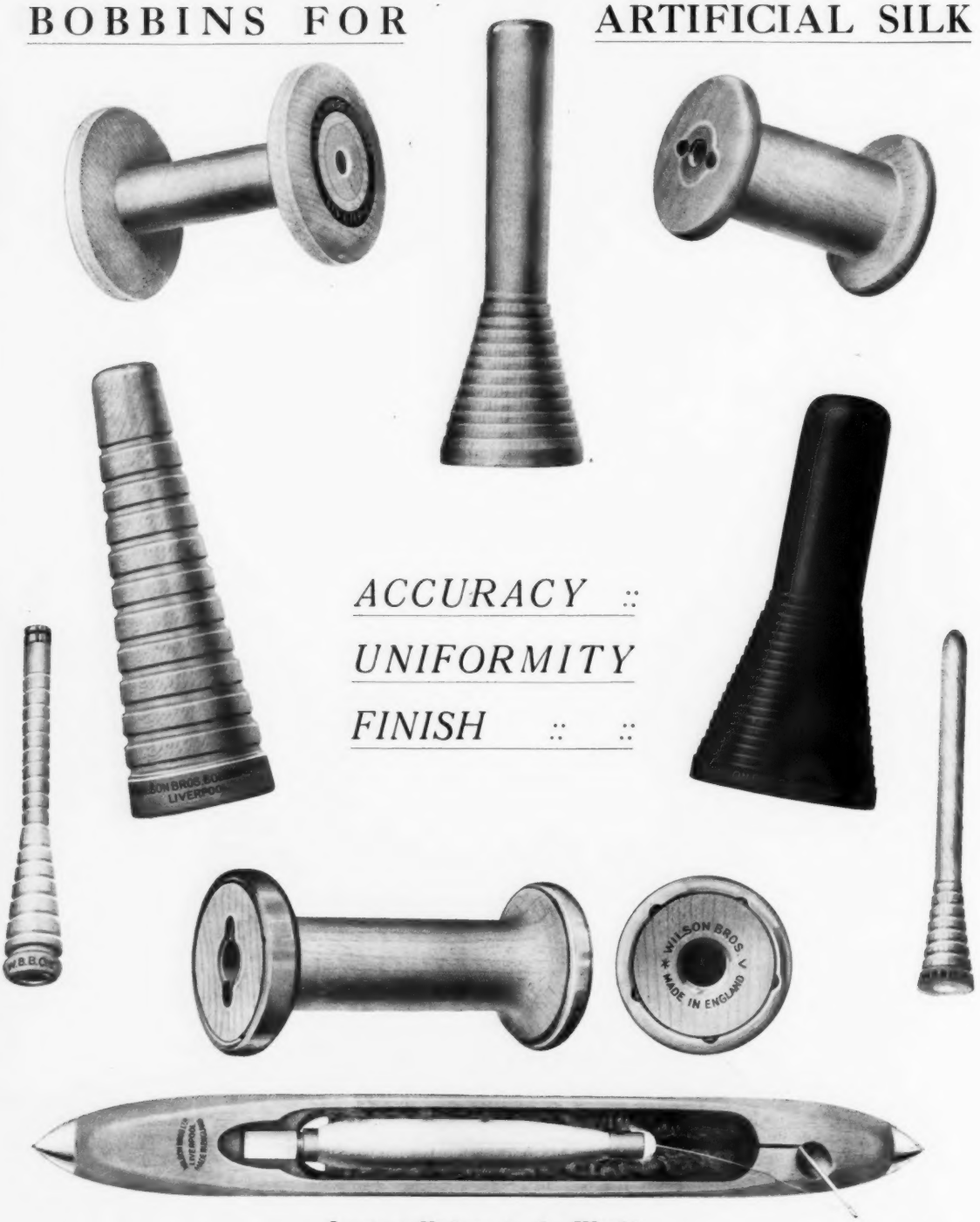

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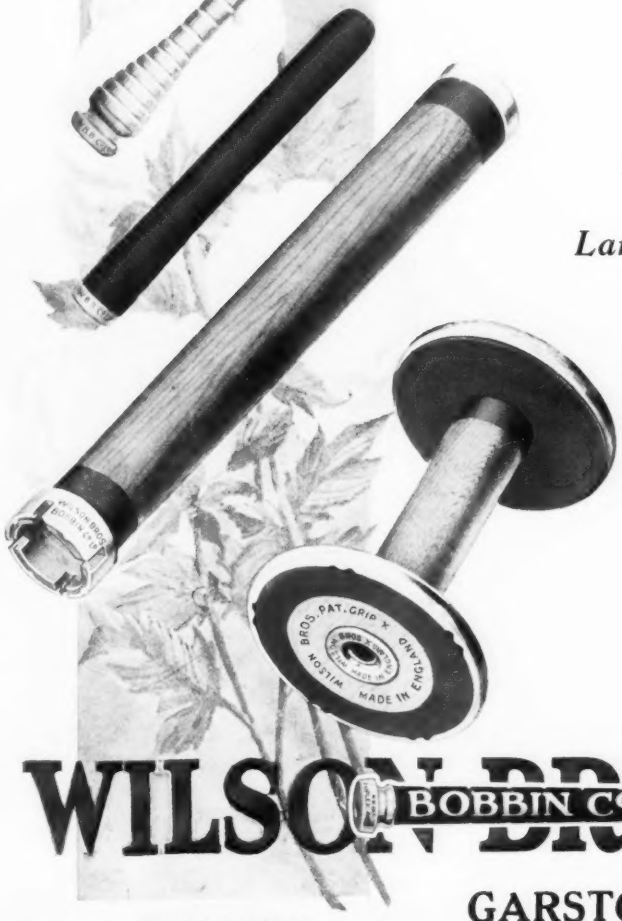

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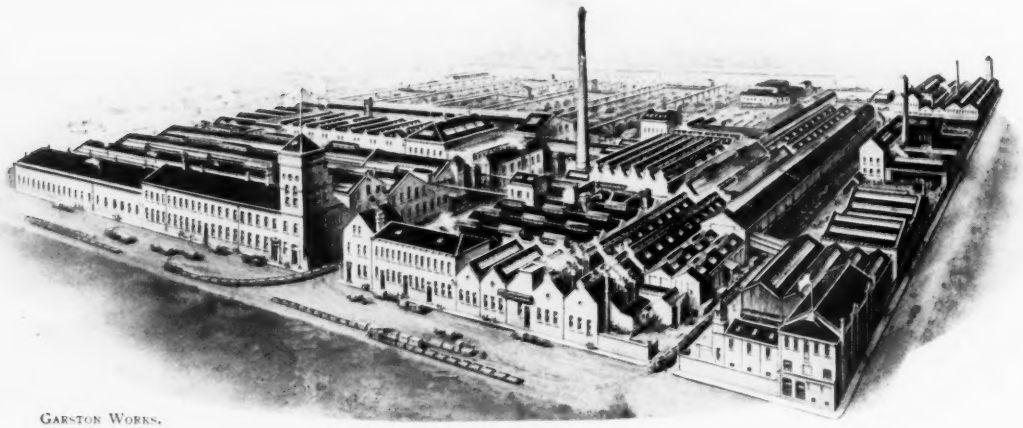

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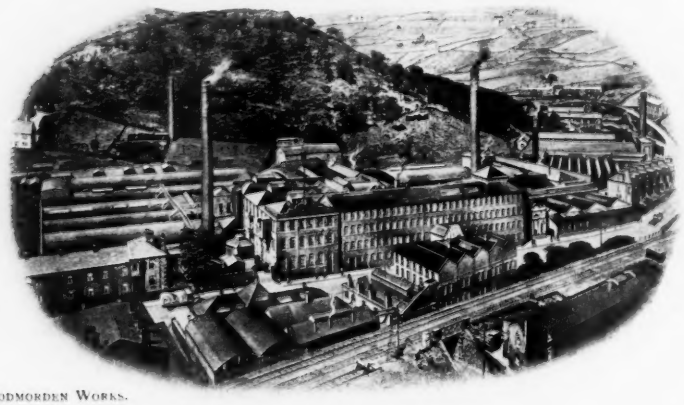

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that were chewed clear through them by the Termaco. We were not troubled by the machine not stripping the bobbins clean, but we had to doff the frames when the rail was about half way on the bobbin, with rail going *down*. We had to see that there was no roving left on the bottom half of the bobbin, otherwise it wouldn't strip clean. We experienced no trouble with the fillet.

It seems as if the discussions on the stripping roll versus the vacuum stripper are running neck and neck. Give me the happy medium—the dustless stripper. A stripping brush with just enough suction to take away the dust. The dustless stripper has all the advantages of the stripping brush and vacuum stripper combined, without the disadvantages of either. It is a poor job indeed when a stripping roll has to be clothed every week.

As "T. A. D." requests, I for one, will come across with the dope as to just what COTTON has done for me. It has shown me how much I really know about the mill business. Also, what is really more important, it is continually showing me how much I *don't* know about said mill business. *BUT*, what is most important of all, the discussion department makes me *think*, and thinking is very beneficial to the old "bean." I get more real information from writing an article intended to help the other fellow out than I really believe he gets out of it. You don't know how little you know or how much you have forgotten until you start to answer some fellow's questions.

C. C. (N. J.)

Grinding Fillet on Bobbin Cleaners.

EDITOR COTTON:

I notice in the February issue of COTTON that "R. E. L. (R. I.)" wishes to know whether anyone else has found it necessary to grind the cylinder fillet in the Termaco machine, and if so, how it is done. I for one, must confess that I find it necessary to grind the cylinder fillet every little while.

Termaco bobbin cleaner machines, are so simple to operate that for this reason they are not considered important, but I find that bobbin cleaners must receive the same attention as any other kind of machines in order to get the best results.

Following is the method used by the writer in grinding the machine:

(1) Remove the bonnet over the belt;

(2) Change the driving belt and put on one slightly larger so it can be crossed;

(3) Remove two bars;

(4) Loosen the bevel gear on the worn shaft so that the bars will be at a stand still;

(5) Get a board about 5-inches in width and cut strips of emery fillet (similar to that used on the horsfal or dead roll) lay these strips crosswise on the board. Cover the whole board. The board should be about one inch shorter than the width of the cylinder so as to enable a lateral movement of the board back and forth.

(6) Grind lightly and stop the machine every little while and rub the finger nails on the point of the wire. If they bite the nails the machine is in proper shape for cleaning.

(7) Replace all parts and set the straps as slack as possible.

Be sure that the surface of the cylinder does not come in contact with the surface of the bobbin, for it will be found that some bobbins are softer than others and their diameter will be reduced in a short time and then there will be slack ends at the start of every doff. I have known cases where this happened, and the overseer, instead of blaming himself, blamed the machine.

A great many mill men will lift their hands in horror when you speak about a bobbin cleaning machine, they will tell you that they don't allow any cutting of bobbins. That is all "applesauce." I class myself as an "old timer," and I know from experience that the help will find a way to cut bobbins. You will finds very few card rooms where girls do not get splinters in their fingers every little while, due to the cutting of bobbins.

WASH (R. I.)

Using Hank Clocks to Pay for Spinning.

EDITOR COTTON:

In reply to "W. R. (S. C.)" with regard to paying spinners by piece-work on the hank basis, will say that we use a system of having the clocks read every day by the section man. Each clock is read every day, and the spinners paid accordingly, instead of computing hanks on an average. I believe he will find this to be the better and more satisfactory method. Spare spinners are paid according to the readings of the clocks.

As to how long it should take a timekeeper to compute the hanks from 400 frames each day, I should say that from two to three hours should be a sufficient time for this.

The hank sheet we use is about as follows:

Number of Frame	Hanks Start	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Total
326	136	208 7.2	282 7.4	352 7.0	423 7.1	498 7.5	530 3.2	39.4 39.4

This form is self-explanatory. In the first column is placed the number of the frame; in the next column the first reading of the clock, or the figure at which the hank clock begins. Then come the days of the week, and the right-hand column carries the total hanks run per week. We have all frames numbered. The spinners should be placed on frames instead of sides; for instance, a twelve-side spinner should run six frames. We have two spinning rooms with more than 200 frames in each room, and each section man has 52 frames. The section men begin reading the hank clocks a half hour before quitting time. The hank boards with the hank sheets on them are turned over to the overseer, who subtracts the previous reading from the present reading, giving the hanks produced on each frame per day. The numbered frames are marked up to a spinner as we would mark up a set of looms to a weaver.

Then the overseer totals up the number of hanks on the spinner's frames and transfers the total hanks run by each spinner to the time book or payroll.

A section man can read 52 hank clocks in 15 minutes, and the overseer can subtract, total up and transfer hanks to payroll in 1½ hours.

Spare spinners should be paid for the number of hanks produced on the frames she ran. Then if a spinner goes out at say at eleven o'clock, she has worked four-tenths of a ten-hour day; then she should be paid for four-tenths

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COLUMBUS, GA.

of the total number of hanks produced on the frames she ran while she was there.

Doffers should be paid in the same manner as the spinners, except on more frames and at a lower rate per hank, of course.

L. L. (S. C.).

EDITOR COTTON:

In answer to "W. R. (S. C.)" I will state that in a mill I have in mind the spinners are paid for piece work on a hank basis; the hank clocks are read daily at five minutes before stopping time by the section hands. Each section hand has a sheet on which are the numbered frames of his particular section and the names of the spinners operating these frames. The readings are taken to the tenth of a hank, and are then turned over to the clerk who makes up the payroll. This mill I speak of runs two shifts. If the reading at the end of the first shift run shows 10.1 hanks, and at the end of the second shift run shows 17.2 hanks, it gives the second shift spinner the difference between 17.2 and 10.1, which is 7.1 hanks.

A spare spinner taking the place of a regular spinner is credited with the clock readings of the numbered frame she runs. If the regular spinner runs the frames five hours, and the spare spinner runs them three hours, of the regular eight-hour shift, each spinner is credited with the readings to which she is entitled, but the regular spinner gets paid for the hanks registered for her five hours, while the spare spinner gets standing pay only. At the end of the week the payroll clerk adds up the several hanks credited to each spinner.

Clock readings for the spinners also apply to the doffers. Columns on the sheets used by the section hands are for names of help, number of frames, days of week, hours run per day, and clock readings per day. It takes the section hand but a few minutes to read the 30 clocks on his section.

REFEREE (CAL.).

EDITOR COTTON:

Concerning the question of reading hank clocks, as asked by a correspondent in a recent issue of COTTON, will say, our clocks are read daily by section hands. These men read the hank clocks on their respective sections daily. They take about ten minutes, compiling their hanks daily and getting the total of each frame weekly.

We do not pay by the hank for spinners or doffers, but if we did, you can see that it would be very easy for each section hand to add the number of his spinners, and their hanks for the days worked would be taken accordingly. It should take a timekeeper about two hours to read and compute 400 frames.

A. N. (MASS.).

EDITOR COTTON:

In answer to "W. R. (S. C.)," I am going to submit a method which I would adopt if I had to pay spinners by the hank clock. Paying spinners by the hank is not in general use, and on general principles it can hardly be commended. I have reasons for making this statement, but I know, like "W. R.," if I were called upon to do so, I would have to obey orders.

It is not necessary to check hank clocks at the end of each day. To check up 400 frames and compute the hanks must take about three or four hours. It will take only the same amount of time to do this once each week. In checking up a room the size of "W. R.'s," in order to have his payroll into the office by Saturday noon he would need to start checking up the first thing Saturday morning. This will take about one hour. Computing the hanks will take approximately two hours depending, upon how many different numbers are being run.

Using this method, the week will end Friday night, and the first week will start short on account of losing five hours Saturday morning. Thereafter, it is plain to see, the week will consist of the regular number of hours.

After this system has been regulated it will evolve simply into routine work. This system will pay the spinner so much per hank per spindle.

The clocks as supplied with frames register from zero to 100 hanks, graded also to the decimal of a hank. To set a price, take the production of any number of frames for one week and get the average for one frame. Thus, if ten frames give 1,250 pounds, one frame will give 125 pounds. This, divided by total spindles on one frame, which we will assume is 250, will give .50, or half a pound per spindle. To get hanks per spindle, multiply pounds per spindle by counts spun. Assuming 50s count—namely, $50 \times .50 = 25$ hanks per spindle.

Suppose "W. R." has been paying $3.00 per frame of 250 spindles, and considers this a fair price. Divide spindles 250 into $3.00, which gives 12 cents per hank per spindle per frame, and as the clocks register hanks per spindle the hanks produced multiplied by the price, which is 12 cents, is simplicity itself. To record the hanks, there would need to be a hank sheet as follows:

Frame No.	Previous Week	To date	Total Hanks	Nos. Spun	Spun Per Frame
1	60.7	90.7	30	50	250
2	00.3	33.3	30	46	250
3	99.2	29.9	30.1	46	250
4	87.5	16.2	28.7	55	220
5	11.1	40.8	29.7	55	220
6	70	00.2	30.8	50	250

These examples show how to read the clocks. The number would have to go to the number of frames in use, or the sheets could be made to take care of 50 frames. Thus, the sheets would run:

1- 50
51-100
101-150
151-200 etc.

It will no doubt need a little patience to get this started, as each number spun will need a different price, as the faster the front roll speed the more hanks will be turned off, but once the price is set, it is set for all time. The second hand should record hanks.

To pay doffers according to hanks turned off by the frames, this could be arrived at by paying them at the average hank for the room. There is a tendency, I think, in paying the doffers piece work to make short doffs, and the price for spooling would go up. A spare spinner should be paid the average for the room.

For "W. R.'s" information, I will say that I am not doing this in practice, as I am not called upon to do so. We think the standing pay is the best. It is the line of least resistance, anyway, but I am offering it here, hoping that it will help him over his difficulty.

CHRISTY (MASS.).

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., have issued a leaflet describing Pontachrome Blue Black BB, a chrome black for giving deep blue blacks when dyed after chrome, especially on wool.

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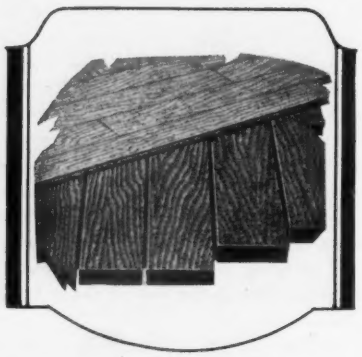
Creo-pine Sub-flooring



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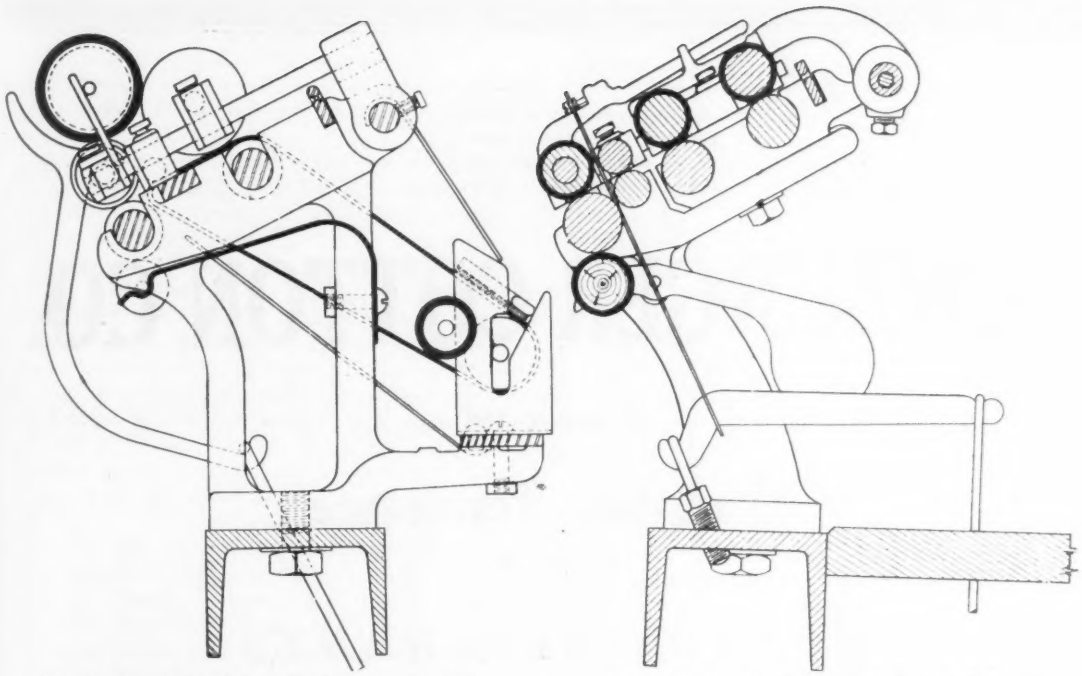

The Le Blan-Roth System Is Shown at the Left. At the Right, the Saco-Lowell Four-Roll System.

Two Systems of Long Draft Spinning.

Two systems of long draft spinning have been developed by the Saco-Lowell Shops which are worthy of notice during the present increased interest in methods for securing drafts longer than customary on the spinning frame. Frames equipped with both systems, making a draft of 20 each, were in operation at the recent textile exhibit in Boston, and attracted considerable attention.

Both of the systems are illustrated herewith. The one known as the Saco-Lowell four-roll system, it will be noted, resembles very closely the usual system of three-roll drafting, except for the introduction of a fourth pair of rolls, small in diameter, between the regular front and middle rolls. The addition of this fourth set of rolls, known as the forward middle rolls, provides a means of drawing the fibers from the regular middle roll and of delivering them to the front roll properly, allowing also for a better preparing of the roving between the two back sets of rolls. With the exception of the additional set of rolls, all rolls used in this method are of the regular size, and are weighted in the usual manner.

In the Le Blan-Roth system, also shown, a further step from the regular three-roll method is taken, in that only two sets of rolls are used, and a long, traveling tape, or cot, is introduced. In the drawing it will be noted that this tape or apron carries the roving from beneath the back roll, and thence to the front roll. As the tape carrying the roving goes under the small roll, it passes over a bar or plate. The middle top roll is small, light, and fluted, its small weight permitting the cotton to slip under it, and, the small diameter of the roll, together with the location of the plate or bar, allows a very close delivery of the fibers to the front roll, which naturally accomplishes a control over the varying lengths of fibers in the roving.

The traveling belt goes back of and below the roll stand, around a tension roll which keeps it tight. On the top is a flat clearer for cleaning the top side, while the inside of the belt is cleaned by a revolving clearer resting inside the belt on the tension roll. With a minimum change in setting, it is pointed out, a wide range of numbers may be spun, and if any change is desired, this is accomplished by the movement of the small top middle rolls. Among the feateures pointed out for the system are that the clearers keep the traveling belt clean; the belts, if broken, are readily replaced, and the clearers are also easily accessible.

Appreciates "Old Timer" and "Cotton."

EDITOR COTTON:

I am again taking an opportunity to write. It seems that I cannot find time to do so as often as I would wish. The desire is very strong and I believe that the thoughts that run through my mind at those times may be much better than those I now present. With this article I intend to try to cover a good period of time, that is, I will start about 18 months back. I hope that somebody may be helped, who is in need of advice along these lines.

One of the very interesting things in COTTON are the pictures and short quotations from readers who are helped by the writings in this magazine and who are willing to let others know of it. It takes courage for a man to stand out and say that he does not know it all. Some of these men I have met and others I have read about, and so feel that I am somewhat acquainted with them. If more of us would be willing to come out and say, "I don't know," instead of beating about the bush and trying to impress others with our great amount of knowledge, we would be much better off. You know we do not need to "hem and haw" very long before the other fellow has us sized up, and the greater percent of time it is to our disadvantage. Let us all take a lesson (this refers also to the writer), and be more open and learn the points we really need

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about our business by closer contact with others. I hope to see many more of these pictures.

The next thing that strikes me favorably are the editorials, not always on a textile subject, but always bringing out some different viewpoint and clearing the subject more in my mind.

Then there is "Old Timer." Here we get information straight from the shoulder and in such a way that we must think about ourselves. in the way of analysis, and not the other fellow.

I could not help but laugh when looking at this page in August, 1924, number, Old Timer going on his vacation. This picture, to me, brought out this point, that when we start anything, we must be sure that all our facts and details are where we can find them. Imagine his face, when he stops his car to fix something and finds that his pump, wrenches, oil can, etc., are missing; but imagine our predicament if we start something and the Boss calls for data, and we find we have lost it on the way.

One of the things that has sunk deeply in my mind is this question from Old Timer, "Would you hire yourself for your job?" At the first, second, and a great many other thoughts we would say, "Yes," and say it loudly and often, but after the question has been with us for some days we begin, very inefficiently, to analyze ourselves, picking out only the most favorable points about ourselves; but later it seems impossible not to go at this subject in a serious manner and do the analysis very thoroughly and without partiality. Then we really find how poorly we are equipped for the task we are undertaking and at this time we should and will begin to make up and dig for the things that are missing, thereby becoming better satisfied with ourselves and more valuable to our employers. I believe it is at this time that our efforts are observed in the most favorable manner by the man above us and are tabulated to our credit for future advancement. We must not expect to reap rewards immediately after our reform, because we are the only ones who know of this change and we must by our example and new attitude towards our work show the others that the change has taken place in us and is to be permanent. It also takes some length of time to prove this, because we have had these spurts before, but they are only for a short period, the boss knows of this and naturally is looking for the usual slowing up again. There is not any one of us who cannot do a little better and more conscientious work if we fully desire to do so.

Another thing that Old Timer harps on is the continuous study needed to be successful and up to date. This is absolutely true. I know, as possibly others do, that when we have been promoted we are for some time full of pep and go and are going to show that no mistake was made in choosing us for the promotion. Then we gradually begin to form the rut, so slight that it cannot be seen, but it is started just the same, and we say, now that I have this job, and am probably the best man they ever had, (no need of smiling, for this is human nature), I guess I will begin to take it easy, and we do so. What happens? It is then that we begin to slip. We find we have no time for reading or studying anything along the line of our work. You know it has always been proven that the man who lets up never seems to be able to find time for anything, takes it all to loaf on the job. Probably you older fellows will not want to admit this, but let us get together and try to show the young man, coming up, the pitfalls in the path we have followed. All will not take our advice, but some will, and if we only are the means of one or two avoiding these mistakes, we have done a good thing for the industry. It is our examples that are the incentives that makes the other fellow strive for a better record.

I am going to comment at some length on the article on "Paging the Card," by Mr. Soniaman in that same number of Cotton. Also on one of the articles by Mr. McLaurine on "Human Relationship in Industry." However, I will write these as separate letters so I can go into more detail.

Resuming my comment, I believe that the West Point Manufacturing Company at Shawmut, Ala., with their testing laboratory are upon the right track. It is becoming more and more necessary for the manufacturer to know more of the inside of things to meet competition. The different effects of humidity on running conditions is being investigated more closely to find the best humidity for each department. There has been too much of let the other fellow do the experimenting. These laboratories are the correct place to try these conditions out and determine what results may be obtained by having higher or lower humidities in different rooms. Of course these experiments may be tried by a great many men, but they will be of no value unless all varying conditions are tabulated and it is necessary to have men who will make tabulations exactly as they are found and not as they think they should be. The laboratory men must have a very interesting time finding out these different conditions and storing up useful knowledge. I believe the time is coming when more mills will have these or a group of mills, will together support and maintain one testing laboratory, where experiments for them may be made.

To comment further, I have seen the C. O. B. machines in operation and noted that the work performed by them was such that a good amount of loose dirt was taken out. In fact, on a test of 400 pounds there has been one and one quarter pounds of dirt taken out at this process. The C. O. B. machine was between the bale breaker and the vertical opener, with a blower to drive the cotton through.

I think I must stop now and do the rest of my writing at a later date. Let us all keep at this and we will all be the better for it. Writing brings out many more and better thoughts than talking.

I wish it were possible for me to attend some of those carding and spinning meetings that are being held in the South, for there must be some good fellowship among those men.

Carder (Mass.).

Reducing Card Fly.

Editor Cotton:

This might be of interest to any readers having too much waste in card fly, as I will tell how I overcame a trouble of that sort, where the under-screen and licker-in screen were badly bruised.

We took the screens out and cleaned them with gasoline and hard waste, and wiped them dry with another piece of clean waste, and rubbed these screens and also the underpart of the card with black lead or ground graphite. Then we cleaned the drip oil-ways at the end of the cylinder un-

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der each cylinder bearing so the oil would not run down the frame on the inside of the card onto the screen and cause an accumulation of dust and dirt to choke up the ends of the ribs of the screen. These oil-ways must be kept clean so the oil will run down on the outside of the frame.

Next we found some of the ribs bent, some broken, and some with dents in them, any of which will cause unnecessary fly and bad carding and cause lumps to roll up and jerk in and break down the end in front, and if it does happen to get by the trumpet it will cause trouble further on.

We made a straight-edge as long as the width of the inside of the cylinder screen and sent the screen to the shop, and, using the straight-edge, we pulled the screen rib up into place and re-soldered it back to its proper circle. This was done only on the screens with knocked-down ribs and where one was so bad that it could not be straightened out, we put in new screens.

Someone might want to know why these ribs were broken loose in the screens. There are two things I have found as causes; the card tender might let the lap run out before putting on a new one, and as this bulky end that is the first formation around the lap pin is thick it will jerk in under the feed roll at the back of the card and go around the cylinder and knock the ribs out or dent the screens. The other cause is when the card tender starts the new lap he might leave it in wrinkles or double it too much onto the one just running out, which causes these jerk-ins. These are the causes of thick and thin places in the goods. Have you ever looked at a piece of cloth and noted a very heavy thread or an extreme light place? It isn't always a doubling or singling. Lots of them are caused from this one thing, and more so where heavy yarns are made and the laps run out more often.

We set the front of the under-screen as near $\frac{3}{8}$-inch as possible and at the bottom set up to a three- or four-leaf gauge, and at the back to 10/1000 to cylinder, and 10/1000 to licker-in, dropping the front lip of the licker-in screen off to $\frac{1}{4}$-inch, setting the mote knives to 12/1000. The screen was set to take out as little fly as possible unless it was desired to carry on through the processes stuff that is so short that it would fly off and make floor sweepings.

In setting the mote knives they can be set to make short fly throw off or to throw out nothing but dirt and leaf.

It is not always the case that the fly is reduced to a minimum even with all the fine points being observed in setting the screens. While with this setting, so far as the screens are concerned, it will be mechanically right and if all the other parts of the card are right, the card should do good work with no loss in fly.

After a card has been run and ground for a good many years and the wire of the clothing becomes shorter and shorter, the more fly will result for the reason that the screens do not change in their circle to the cylinder, but the cylinder gets smaller in diameter, and the teeth are much shorter and do not hold the stock of the fiber as when they were long and keen. This is the common reason for a card cylinder creating a current of air and the clothing after being ground very short near the knee of the wire becomes stiffer and causes more fly and weaker yarn will result from over-carding. In a new card room the pretty card sliver is noticeable but the same mill ten or twelve years later will cause the superintendent to let out a howl about breaking strength and floor sweeps and card fly. This is possible without changing the grade of the cotton, or other factors. I have overcome these things by experimenting and watching the results obtained.

L. F. (ALA.)

Opening and Cleaning Cotton.

EDITOR COTTON:

I will give you in this letter my opinions with regard to various points on carding, and also some actual percentage figures on waste taken out with different kinds of opening equipment. These are induced by the questionnaire which Chairman Corn of the Southern Textile Association sent out for the recent Spartanburg meeting of the Carding Division.

The best method of preparing a mix, I believe, depends largely upon the opening equipment being used. If the equipment consists of bale breakers and vertical openers in tandem, my idea is that the most economical method and one giving entirely satisfactory results, is to have as many bales laid down on the opening room floor as space will permit. The cotton is taken from these bales in thin layers and loaded onto a truck, which, when filled is carried to the extended feed apron of the bale breakers. The cotton is fed onto these from the truck, by tearing up and distributing evenly over the length of the apron. By handling it in this manner, every time the feed apron moves forward to fill the hopper of the bale breaker, it carries into the hopper cotton from several bales. We are spinning about 10s from Middling cotton, a large percentage of which is compressed, and while we have little doubt but that, especially on the compressed cotton, the use of ageing bins would help, I do not believe that the advantage obtained would justify their being built.

As to the best type of opener to use, after a long series of experiments with different types and combinations of opening equipment, I am firmly of the opinion that vertical openers are decidedly the most efficient cleaners, and prefer these machines arranged in tandem. I do not believe that a better layout for the opening room can be had, with American-made machinery, than one consisting of bale breaker and two or three vertical openers to each unit, the number of openers necessary depending upon the stock being run. It is claimed by some that while horizontal cleaners fail to take out as much waste as the vertical openers, they remove from the cotton a different character of waste from that which would be taken out by the vertical openers. I think, however, that this is a mistaken idea, because on close examination and comparison of waste taken out by the horizontal cleaner and that removed by the vertical opener—when, of course, these two machines occupy the same relative position in the layout—it will be found that the waste from the vertical opener contains all that the horizontal cleaner removes, and in addition to this, a sufficient amount of foreign matter and unspinnable staple to change the appearance of the waste.

On account of this changed appearance, some arrive at what I believe is a wrong conclusion, namely, that the horizontal cleaner takes out a different character of waste than that of the vertical opener, and for this reason consider it a more desirable cleaner. I believe that the horizontal cleaner is a good machine, but not nearly so effi-

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cient as the vertical opener. Substantiating this idea, I give below the results of some of our numerous experiments along this line.

The first combination consisted of a bale breaker, two vertical openers, and one horizontal cleaner, in the order mentioned. The speed of the first vertical opener, was 755 r.p.m.; second vertical opener was 587 r.p.m; and horizontal cleaner, 450 r.p.m. 5,537 pounds of cotton were used.

Waste from first vertical opener	1.273 per cent
Waste from second vertical opener	.577 per cent
Waste from horizontal cleaner	.307 per cent
Total waste	2.158 per cent

The second unit was composed of a bale breaker and three vertical openers. The speed of the first vertical opener was 770 r.p.m.; second, 593 r.p.m.; and third, 471 r.p.m. 5, 631 pounds of cotton were used.

Waste from first vertical opener	1.273 per cent
Waste from second vertical opener	.772 per cent
Waste from third vertical opener	.426 per cent
Total waste	2.477 per cent

In another experiment we ran 24 bales of cotton, with the following combinations and results.

The first unit consisted of a bale breaker, a vertical opener and two horizontal cleaners in tandem. 5,840 pounds of cotton were run.

Waste from vertical opener	1.044 per cent
Waste from first horizontal cleaner	.530 per cent
Waste from second horizontal cleaner	.312 per cent
Total waste	1.887 per cent

The other combination consisted of a bale breaker and three vertical openers, and 6,054 pounds of cotton were run.

Waste from first vertical opener	1.073 per cent
Waste from second vertical opener	.670 per cent
Waste from third vertical opener	.404 per cent
Total waste	2.147 per cent

I have before me other tests, all of which show practically the same results. In each instance the waste removed contained practically no spinnable staple.

It has been my experience that grid bars produce more satisfactory results than the perforated screens in vertical openers when using this machine as a cleaner as well as an opener.

Setting of grid bars to give the best results will depend on the grade and staple of cotton being run. I think the most satisfactory setting should be determined in each plant by making adjustments, studying closely the character and amounts of waste being taken out, varying these adjustments one way or another as is deemed necessary, until the waste which is being removed is of sufficient amount and contains no excess of good staple.

As to re-working returned waste, I believe the most satisfactory method is to have this waste returned to the opening room and fed onto the lattice feed table with the cotton from the opening, the feeding of this waste being done by a waste hopper, which is run very slowly, no faster than is necessary to take care of a day's accumulation. In this way the waste is evenly distributed throughout the day's work.

In my opinion humidifiers are out of place in the opening room. I have never used them, and believe that humidity in this department would do more harm than good, due to the fact that the drier the staple at the time of cleaning, the more readily the good stock will separate from foreign particles and short unspinnable fibers.

The foregoing is in a way replying to some of the questions asked in the Southern Textile Association questionnaire, but I thought our findings, especially with reference to the percentages of waste, might be of interest to your readers.

R. G. (N. C.)

Discussing the Fly Frame Problem.

EDITOR COTTON:

I have been reviewing the "How Other Men Manage" section of the January issue of COTTON and I found something of interest in the articles by "Wash (R. I.)" namely, "Uneven Tension on Fly Frames," and "A Fly Frame Problem," which, by the way, to my understanding seems to be dealing with the same subject, only some portions are somewhat confusing and are simply a series of rebuffs and questions asked of former antagonists on this fly frame subject.

However, according to dates given in one of "Wash's" letters, this little controversy is one of long standing, and to me it seems that somebody ought to settle the argument, especially if "Wash" refrains from doing so until "H. H. Y." and "J. L. (Mass.)" solve the problems he has set for them, though, I may say that if "Wash" would at least impart a little information regarding his excellent discoveries on fly frames instead of "throwing down the gauntlet" as it were, to the bobbin-lead adherents, we would all benefit by it considerably, and this I am assured is the object of the discussion section of our splendid journal.

However, in his letter on the fly frame problem he refers to the accompanying drawing and describes various gear changes that were made, and also results obtained from such changes, which it is very clear to understand that to change compound pinions and bottom cone gears as stated was mere guesswork and void of all calculating ability, but perhaps this was done for experiment only, though I am inclined to think that perhaps the changing of the pitch of the bell gear and bobbin shaft gear has a great deal to do with the necessity of changing the compound pinion and bottom cone gear, though the reduction in the speed of the bobbin shaft made by changing from 70 to 53 bell gear and from 44 to 33 bobbin shaft gear is small, nevertheless, it is sufficient to force some change to compensate the loss.

Now in his reference to the drawing, "Wash" tells us that the change gear marked C H was changed from 32 to 20, and I take it to be that the compound pinion was changed, and it appears that this enabled the cone belt to take its place, where it ought to be always at the beginning of a new set, but still the tension was slack. At this point we would think that a little larger compound pinion would solve the problem, but, no says "Wash," we put a few teeth on the bottom cone gear and now we have on a 24 in place of a 19, which settles the difficulty and gives the right tension, but the cone belt has to move up a little—only 3½ inches—then everything is o.k. until at the finish of the

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set we are surprised to see a small bobbin, somewhat tapered above the average.

No wonder!

"Wash" wants to know what causes all that business. Well, it seems to me that whoever made such changes forgot to adjust the builder to its fullest extent, at the beginning of the set, when the bottom cone gear was changed and also the cone belt moved up the cones 3½-inches, as stated, and it is obvious that the 24 gear, regardless of the readjustment of the cone belt, would increase a little the speed of the lifter, or carriage, without changing the lifter or lay gear which it appears was not changed.

However, he does not state that the long rack had to be "let out" occasionally, which probably was the case, and I think "Wash" has not placed everything in detail before his antagonists, and if this is so he cannot expect any solution to the problem.

Anyhow, perhaps this letter will lead him to explain what he really means by his fly frame problem.

REX (R. I.)

Vacuum Versus Roller Stripping on Cards.

EDITOR COTTON:

I have just finished reading all of the articles in your February issue of COTTON, and would like to say that they are all interesting and profitable. I notice that some of the contributors are very critical in their arguments. As I understand it, the "How Other Men Manage" department of your magazine is set apart for the purpose of asking and answering questions by the men in the mills, where men with a spirit of cooperation are willing to answer questions and give their practical experience upon various problems which come up day by day, and where free speech is permitted.

I thoroughly understand that this is a free country, and if "Rex (R. I.)" wants to write a long flowery article in keeping with an idea that "T. A. B." has brought out in some particular issue of COTTON concerning his method of stripping cards, there is no great harm done, but why pick on this kind-hearted fellow "Wash" by saying that he has not had much experience in the art of stripping cards, when he probably was trying to help some fellow by arguing his side of the stripping game?

It could be that "Wash" knows just as much about stripping with the vacuum as "Rex" does about the roller stripping, and if "Wash" has been in the mill business very long I am sure that he has had experience with the roller stripping, as this is the stripping that we were all raised on. So far as anyone being benefited by the vacuum stripper is concerned, this is entirely possible, as I am sure that our card room has received great benefit from the vacuum stripping system, and it has not been through high efficiency in production alone. Our cloth production stands very high in quality on the cloth market of today, and I am sure that the cloth would not have a very clean appearance if the cards were only producing motes, neps and all other dirty impurities that some of the critics of vacuum card stripping would have us believe. Without throwing any bouquets at our clean carding, it is generally known and talked of by traveling men who have no especial interest in our mill, that we have the cleanest and smoothest carding of any mill in this valley. Right here I might add that there is some of the best carding in our state being done very close to us. We are using the vacuum stripping system altogether, and strip our cards six times every twenty-four hours, as we run night and day. I do not, however, give our stripping system credit for all that our cards are doing, but I am absolutely sure that I cannot condemn the system for the impurities that do pass our cards.

I have made tests on the cleanliness of card sliver from both roller and vacuum stripping, and, as I said before, we are after quality first and quantity next. We will stick to the vacuum stripping. I will give my stripping system here, hoping that it will be of some benefit to others, then I will feel that I have done a good turn.

We are producing a 13 1/2-ounce lap on our finisher pickers and receiving a 45-grain sliver on the front of the cards, carding about 260 pounds every twenty-four hours from Strict Low Middling cotton in compressed bales. We have 48 cards, and keep three sets of grinding rolls running at all times, making our round on grinding every eight days.

After a card is run we put a burnishing brush on the cylinder and doffer of that card and brush for 30 minutes with the intention of smoothing up the edges of the wire teeth where probably the traverse grinder has left burrs. In stripping 45 cards, it takes just 45 minutes to strip the cylinders and one hour and 15 minutes to strip the doffers.

Some of the articles in last month's COTTON stated that the big idea of vacuum stripping was in time saving, but I do not see that there is any great amount of time saved in the time of stripping, as doffers can be stripped very much faster with the roller system than with the vacuum. I will admit, however, that there is a saving or a benefit derived from the vacuum system in production, as there are never two cards with the feed cut out at any one time ahead of the strippers, and the two cards behind the strippers are filling up before the ends are pieced up.

We have four cards stopped at one time when stripping with vacuum, and at least ten when stripping with the roller. Some men argue against the price derived from vacuum strips. It is true that vacuum strips are about four cents a pound cheaper than top strips. We make about 400 pounds of vacuum strips a week, amounting to a difference of about $16.00 a week, but when considering that it takes two skilled laborers to run a stripping brush and the stripping is carried on with one skilled laborer when stripping with the vacuum, there is not so much loss after all.

The only times we resort to the old stripping brush is when the vacuum pump is being cleaned in order to hold our vacuum at 23 inches. I think if the motes are taken out at the proper place there will be no trouble in motes being wedged between the wire teeth of the card clothing, but I cannot say much along the line of cleaning motes from card clothing, as it has been so long since I experienced that pleasure that I might make a mistake. Our stripping nozzles are set to a doffer and cylinder every time the card is set up all over, which is every twelve days.

We make regular inspections of our card clothing, and if the vacuum has an tendency to loosen the foundation of the clothing on the cards we have been unable to detect it.

V. A. C. (Ga.).

T. J. NICHOLS, of Columbus, Ga., has accepted the position of overseer of dyeing at the new Piedmont Plush Mills, Greenville, N. C.

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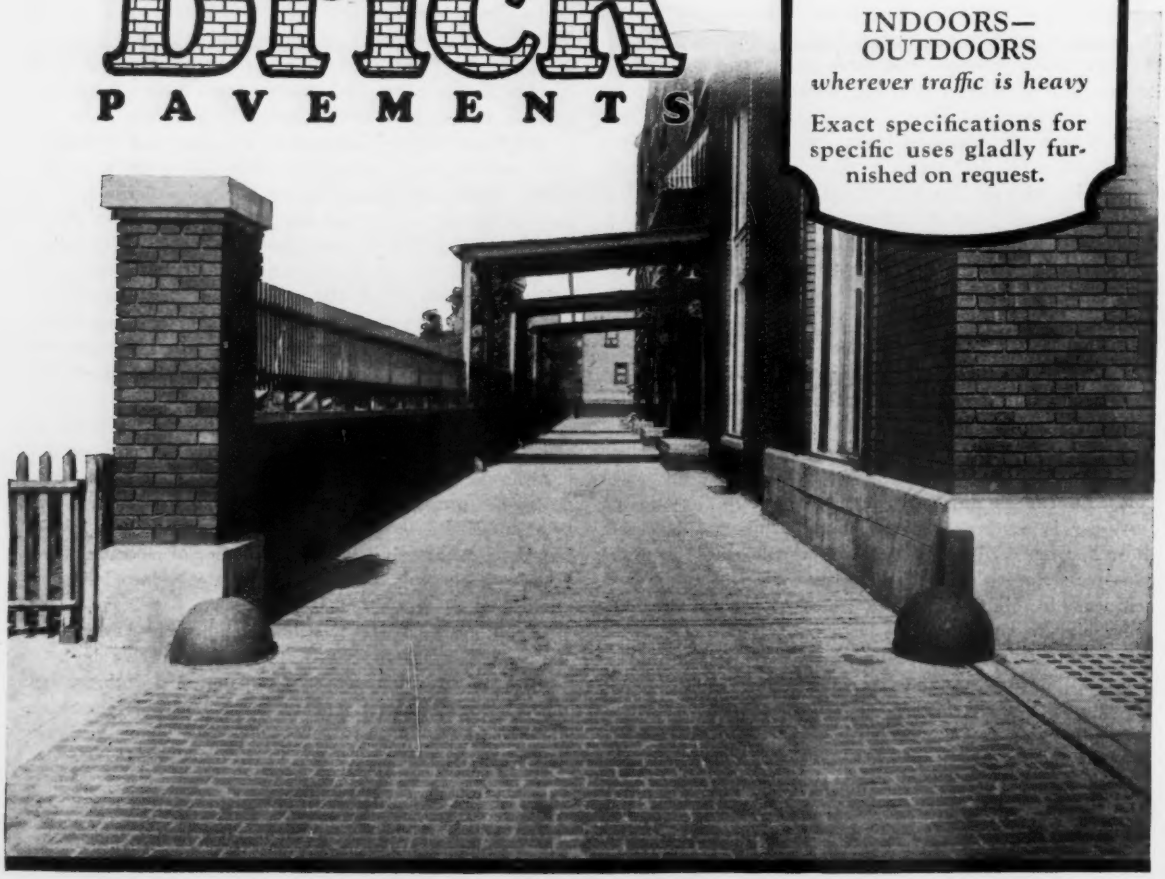

A Discussion of Feeders.

EDITOR COTTON:

Sometime ago I was asked the question "Can a feeder be made to furnish stock either in bulk or by the automatic feeder plan, that is, weighed?" My answer was as follows:

With regard to the first method the stock is fed in, the hopper being always kept about half full, so that it is fed regularly to all kinds of pickers, openers and similar machines, but not weighed. The improved feeder is the result of long continuous experience along this line and the adaptation of the feeder to openers and similar machines is a culmination of that experience and knowledge. This feeder is proving highly satisfactory, as evidenced by the general demand for it, as it requires no watching or manipulating by the help only to keep it about half full, in fact a long rank of pickers or openers can be run at once together by means of a belt carrier which dumps the cotton or waste into each feeder as necessary.

The machine is little over seven feet long from back to front, and can be built to any desired width. The frame work is made from heavy castings, well ribbed to keep them straight, and the panels are of sheet steel and the idler rollers of sheet tubing. It is very strongly made and is practically an all metal machine, as the only wood used is that for the transverse staves of the spiked feed lattice. In order to increase their durability these staves are provided with steel wearing strips where they rub against the guides. The lattice rollers are all readily accessible in case it is found necessary to remove them.

An additional feature of interest is the provision of self-aligning ball and socket sleeve linings, allowing the machine to align itself to any setting and to run on less power. The gearing is amply protected with suitable covers to prevent accidents to the operative. The hopper for the supply of fiber, which must be kept more than half full at all time, is made of ample proportions to suit all classes of stock, while the speed of the machine can be readily adjusted to conform to the fiber under process. A further feature is the provision made for changing the gears of the spiked inclined feed lattice without altering the belt. A combined automatic hopper feed regulator has been designed which well meets with the demand for an inexpensive and effective mechanism which will control the delivery of stock to a breaker lapper (or otherwise) and these insure even laps. The object of this device is to keep the amount of stock in the feeder hopper at a constant level by providing an intermittent feed which acts automatically, its action being controlled by the quantity of stock in the hopper. It is no use to give the details of this regulator mechanism here. There is another feeder which is of the Bramwell type and is often used in place of lappers at the back of breaker cards on low cotton waste and similar goods. This machine is fitted with a patent weighing arrangement by means of which the feed lattice is stopped when a certain weight of cotton, which can be regulated at will, has been deposited in the receptacle, at regular intervals. This receptacle is opened and the cotton dropped on the constantly revolving feed lattice of the card, so that an even weight of cotton is always deposited on a certain length of lattice.

Comparing this feeder with that for an ordinary cotton opener there are radical differences in the construction and operation of the apparatus for equalizing the cotton and for cleaning the cotton from the spikes of the elevating apron. The various motions are capable of fine adjustment, and it is stated that a very regular feed can be obtained by this automatic feeder. For heavy, dirty waste, which would become too much matted if made into laps, this feeder is especially suitable, as it delivers the material to the card in a loose condition. This system does not compete for certain sorts of waste, so much with the more usual one of laps, as it does with the method of spreading the cotton by hand upon the lattice at the back. In a manner of speaking, this automatic feeder is a cross between the one used on a cotton opener and the Bramwell feed used by the wool trade. CONTRIBUTOR NO. 4352.

Boss Weavers and Cloth Room Men.

EDITOR COTTON:

I read with much interest the article by "Pine Tree State (Maine)" in the May issue of COTTON, entitled "A Boss Weaver Gets Serious."

In looking at a boss weaver from some angles, it does seem that he is hard at times and it looks as if he were striking below the belt, but I always give him credit for his earnestness in trying to keep up with the quality of the production, for that is about all that these fellows judge him by; his earnestness in keeping right in behind the other foremen on keeping up the quality of the production as far as possible, and the more he finds and reports, the more they think he is making it hard on them and is a bonehead, but if you will make a practice of telling him to show you what he is talking about he will do so. So there you are—guilty or not guilty? And there is no use running a weaver down because he shows up defects in the product. The quicker we can discover these defects and remedy them, the safer we are with the buyer, and the buyer is one man upon whom we are all dependent. At the same time, he is very reasonable in his requirements. He does not want unreasonable things. In fact, at one time, I recall, when we were on a certain class of goods, the buyer had occasion to call upon us. It was more an outing for him than a necessity. However, he stayed with us a few days and went over things in general, which proved to be very helpful, as he gave us many points in the making, grading, etc., of the goods. He said we could pass up some things that we were afraid to put into the first quality bales, but we should not change our grading and packing system, for it lowered our grading system and the difference would not justify the change. This is said to show that the boss weaver is trying to protect the mill's interests and to make as sure as possible the satisfying of the customer on the grades.

Being a good clothroom man is nothing more nor less than just keeping up with the quality of the cloth that is coming through the room; laying aside inferior cloth that should be called to the attention of the other overseers and having the cloth inspected, graded and packed as it should be in order to make the best appearance. A clothroom man cannot be too careful and the other overseers should not take any personal exception to his zeal in reporting defects and having them looked after as soon as possible. Many times cuts of cloth come into the cloth room and the cloth-room man can detect the defects, get the loom numbers and have the defects corrected before the cloth is ever graded, thereby preventing the weaving of many yards of defective

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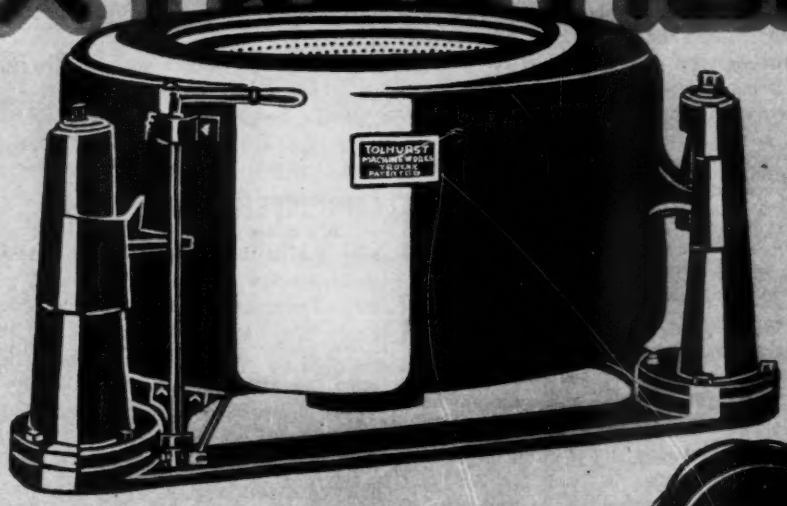

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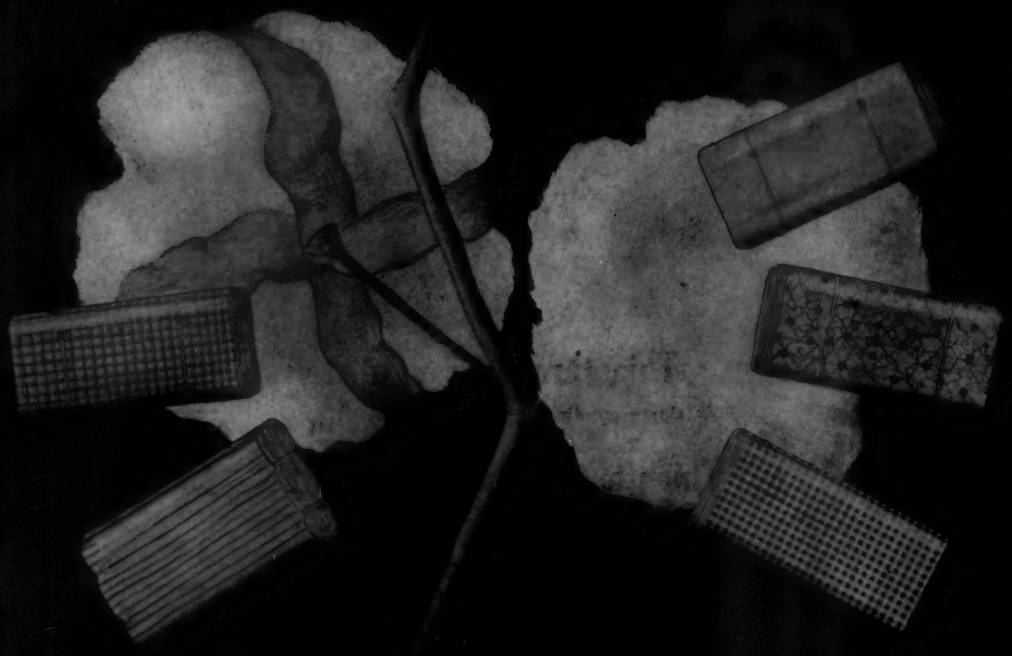

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goods. The manager or buyer is the cloth room man's boss, of whom he is constantly in dread, which causes him to put forth his best efforts to insure safety.

For a weaver to have charge of the cloth room and the weaving, is, in my judgment, the wrong idea, providing, of course, that the mill is large enough to afford a foreman in the cloth room. If it is not, then the weaver should provide a good second hand in the cloth room and let him work between the second hands in the weave room, the weaver having the supervision of the two departments as a superintendent would if there were an overseer in the department, taking his bad work findings as if he were superintendent, then he might get by with it. Otherwise, when the weaver has both departments under his jurisdiction he will naturally try to get by with some inferior grading to make his weaving show up a good per cent of first quality production, as he, particularly, has no immediate boss, and it is sometimes months before this inferior grading gets to the mills, then he will have some other alibi. A state of unrest, more or less, prevails in the institution most of the time, not being exactly satisfied with the grading in the cloth room and at the same time not being able to put your hands on any one thing to tell your cloth room man. If I had not been all along here I would not feel this way about it, but I guess it is best to get all of these knocks as soon as possible for educational purposes.

Now as to the last paragraph regarding the "He-flappers" being in charge of the cloth rooms. Occasionally, this may happen, but rarely; and if it does happen, if the superintendent will give the cloth room foreman the power to employ and discharge the operatives, even if he does have to tell him occasionally to discharge certain operatives, he will feel more responsibility and will not be tickling so many under the chin, as indicated in this article. The superintendent should not permit himself to have to perform such duties as this. You can invariably make your foremen what they are, good, bad, or otherwise, by giving them the responsibility of the conduct and the efficiencies of the room. You do not always have to break a man's neck to get him to realize some things. Let them know that you are holding them responsible for certain things in this department and they will measure up to it. There is not enough trust put into the average foreman of today to make him feel that he is really responsible for his room.

The average overseer does not realize the importance of the situation in which we are living today in the textile world, especially the southern end of the textile trades. We have emerged from the back to the front in this line and must hold our position. We can hold it if we will put forth our best efforts, putting into practice things which we have learned and are learning through the reading and advertising pages of COTTON. Think of the wonderful help we are getting from the "How Other Men Manage' section of this magazine from month to month. This in itself furnishes a world of information, its contributors (with the exception of myself) being the best practical men of the day. In a few short words, the man who does not take advantage of this opportunity for self-improvement had better hunt him a little cottage with a few acres of land and move into it before he is forced to do so by being "out-of-luck."

When I started in to write a short note I did not intend to preach a sermon, but when I get to writing for COTTON I never know when to stop. I get so enthused that I can't quit.

T. A. D. (GA.)

Treatment of Card Clothing.

EDITOR COTTON:

In a gathering of mill men sometime ago the question arose as to how card clothing is put on, and for the possible benefit of others who may be interested in the subject I am submitting my opinion for publication in "How Other Men Manage."

All card clothing must be put on tight, whether in reference to filleting, to sheets, to revolving flats or otherwise. It is surprising to what extremes men will go when reason or common sense ought to teach them better; in the case of carders they should know that one of the worst features about card clothing is the way it is put on. In a good many instances it is left on in such a condition that it has to be drawn over again in a year or two on account of its working loose. In the case of filleting, it will rise at the edges, and in the case of sheets they will rise wherever the stretch is not taken out. There are two evils to contend with when card clothing works loose. If the tops or flats are set close the clothing of the cylinder will rise and face up or blister in spots and in order to avoid this the flats and doffer must be set far enough off to avoid this. It will at once be seen that poor carding will always be the result of this state of things.

In the first place, and I might as well mention it here, the clothing must be kept as hot or hotter than the room in which it is to be used for at least one month (or longer) before it is put on. The writer always kept his over the engine room and boilers. The idea being to swell it as much as possible before putting on, that is, in reason. Then again, it makes quite a difference in drawing fillet whether we apply 175 pounds of weight or 300 pounds.

Quite a number of years ago the writer took charge of a new lot of carding. These cards had all been clothed with unheated filleting and drawn loose for fear that the strain would tear the cloth. I did not know anything about this mill until I made an examination of the work. It did not take me long to make up my mind that there was serious difficulty with the carding. On examining the card clothing I found it was faced badly, and consequently the carding was rough and full of neps or small specks. The agent's attention was called to it, but he said it was put on for first-class clothing and he could not see his way clear to remove it; we would have to do the best we could with it. The result was that we had bad work, doing the best we could, until it was removed some years later. Good six-ply cloth and rubber works well in the form of filleting, but I am not in favor of it for cylinders.

Ever since the introduction of high speed on card cylinders the use of card filleting has been resorted to. There has been considerable trouble with this on account of its rising. It has to be drawn close to work well.

In all the mills of England generally there is nothing in use on the cards of today but filleting drawn very tight and close. This enables the manufacturer to use his cards at a high rate of speed. There are two points to be gained by this, aside from good work. In the first place, the high speed already mentioned, and in the second place, a much larger product.

The revolving flat card is a carefully designed and well

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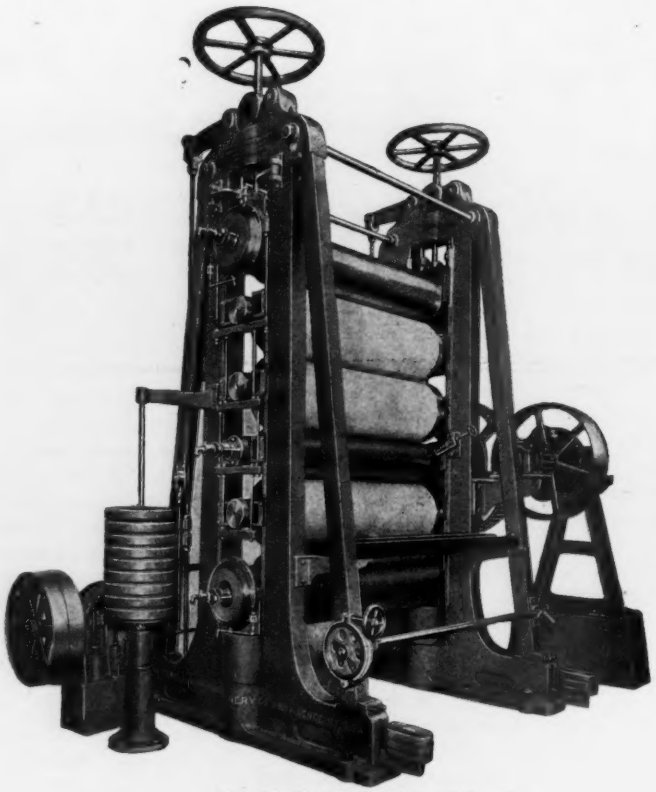

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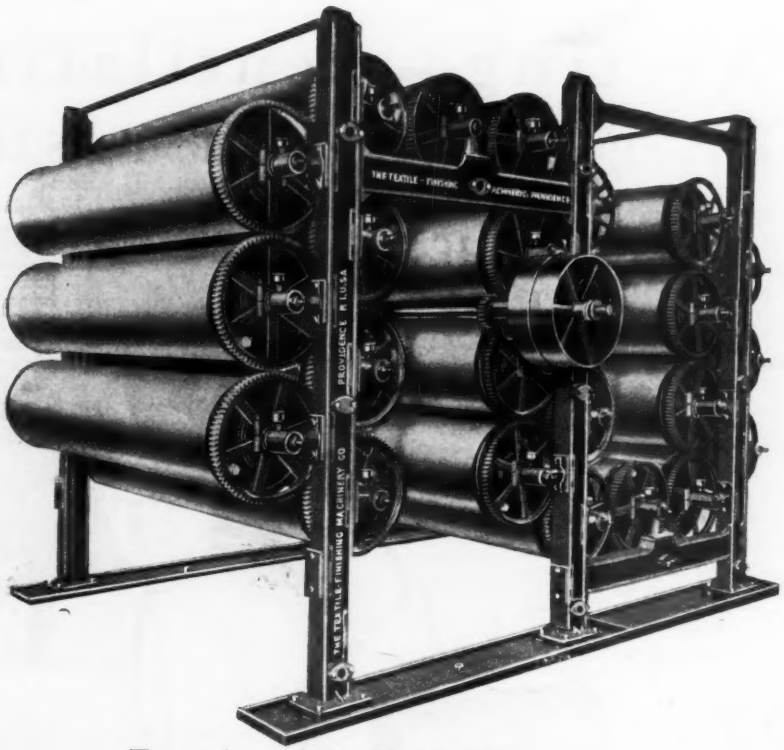

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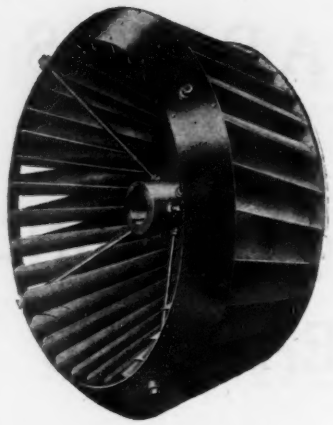
Why not find out NOW what we can do for you?



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The guess work your cost clerk is obliged to resort to in making his bids (when human count is employed in production costs) is no more than a "blind stab" with a margin for production uncertainties thrown in.

Know your production costs to the very fraction of a cent, and base your estimate on known figures.

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built machine, capable of fine adjustment, but it too often happens that for want of proper care and attention, full advantage is not taken of its construction. Too much attention cannot be given to the clothing (and also the doffer) to see that it is tight and immovable, and then comes good grinding, setting, stripping and cleaning. Clean cards and a clean card room indicate good spinning and weaving and it is a false economy to employ cheap, incompetent help on cards. Poor work on cards cannot be improved in the subsequent processes of drawing and spinning. Accuracy, or the obtaining and maintaining of true surfaces, being the first consideration in building and working revolving flat cards, it is obvious that this most important feature ought to receive as much attention in the mill as in the shop in order to get the best results in carding.

If the best results are to be obtained use the shell feed and clothe the cylinder and doffer with hardened and tempered cast steel wire set to the best English cloth, but above all *draw tight*. I mean by this to draw so that there will be no necessity of doing the work over again in one or two years. If the question of wire is to be determined, do not have it too coarse. The best counts of wire to be used are:

	Cylinders	Doffers	Flats
For coarse work	90s to 100s	100s to 110s	90s to 100s
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Contributor No. 4351.

Clipping Files and Filing Systems.

Editor Cotton:

How many times in a year when you need some information on a certain subject you will just faintly recall that it seems you have seen the very thing you want at the time somewhere—yes, somewhere. If only you could recall just where, everything would be all right. But the darn big IF!

Time was, when books were scarce and knowledge was limited. One could find almost all the information concerning any subject that one might confront in one's lifetime, from astronomy down to medical science, all in one volume. It was no trouble at all to find just the information wanted if one was in possession of the one volume. That time has passed. People of our age are confronted with a list of ever-increasing books, as well as other forms of literature—daily papers, weeklys, bi-monthlys, magazines and a thousand and one other publications. In order to make these sources of information useful to oneself for quick reference, one has to go to the trouble first to search out the useful information; secondly, to file it in such a manner as to be able to lay one's fingers on it when it is needed.

"Ideas are born," said Elbert Hubbard"; they have their infancy, their youth and their time of stress and struggle; they succeed, they grow senile, they nod, they sleep, they die . . . " Mr. D. McNicol wrote on Engineering Literature in the journal of A. I. E. E., "During the past twenty years . . . the growth of filing systems where may be deposited for quick reference, papers, clippings and reports on classified subjects, has had the effect of making it extremely difficult to write a new book on a technical subject which would be as complete as the information on the same subject stored in the files of engineers directly interested." . . . And "This situation," he continued,

This bobbin was wound of very heavy yarn to show the detail of the wind. The same sort of work is done on single cotton, wool, worsted, etc.

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The yarn is wound from beginning to end under even tension, and the cross-wind lays the yarn so that it can not possibly sluff off. Any tendency of the yarn to wrap around the bobbin barrel and draw selvedges is eliminated, because the yarn throws *from* the bobbin.

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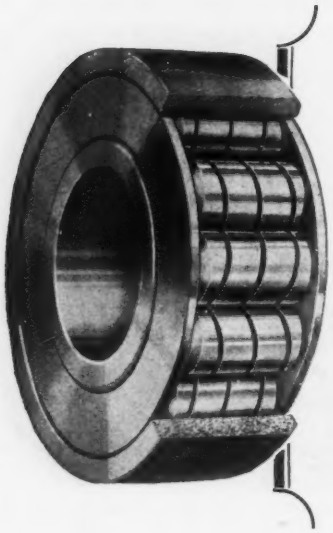

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They know that Hyatt Bearings maintain, smoothly and unerringly, a permanent coordination of the shafts and that especially on the rocker shafts, they greatly reduce the chances for thin places in the fabric by eliminating wear at these points.

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A growing demand for Hyatt-ized looms has followed recognition of their durability. Hyatt Bearings have been used for about thirteen years in looms. They will operate many more years without need for replacement.

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"sharply emphasizes the importance of inquiring into the grade of the material which goes into filing systems. If technical periodicals are to be clipped to build up files of data on stated subjects, it is at once apparent that the material should be accurate and dependable . . ."

What I want to emphasize in this short letter is that the reader acquire the habit of filing—for those who have not yet found time to do so, also for those who have already started, that they make sure that the material which goes to make up their files is "accurate and dependable."

As I said, the purpose of this letter is not to give a method of filing, or a comparison of the different ones now in use. As to that, one can decide for oneself just which one suits best.

COTTON is unique in that it has constantly urged, throughout its pages, that the readers build a sort of filing system, or "idea catcher." It disappointed me, however, not to be able to find some sort of an index at the end of each volume of COTTON. I think it would render it more useful to the readers. How about that for an idea? Or is it better for each man to build his own index?

H. H. Y. (CHINA)

Answers to Spinning Questions.

EDITOR COTTON:

In the September, 1925, issue of COTTON, on page 1159, "Bert (R. I.)" shoots a hot line of good practical questions on spinning. It has been for quite some time my intention to answer them as best I can, but you know it is one of the traits of the human animal to neglect the things he most desires to do.

"Bert" has the right dope clean through when he says he prefers to use as small a circle traveler as possible. Just as he points out, the smaller the circle, the less slugs and bunches will get by in the yarn. I will endeavor to answer the questions he asks, numbering them to correspond with his own numbering.

1. The tendency seems to be at the present time to favor a No. 1 flange ring. The advantage of the No. 1 flange lies in the fact that it is 1/32 inch narrower than the No. 2 flange, consequently a much stronger traveler can be used on the No. 1 flange without any increase in the weight of the traveler. A double flange ring is to be preferred by all means, as it means double life to the ring.

It is quite hard to say just what length of time rings should last, as there are so many factors entering into the question, such as: General care, speed of traveler, numbers being spun, weight of traveler, style of traveler used, style of ring used, size of ring used, excessive humidity, and type of ring holder.

2. The castiron ring holder is to be preferred, as it can be held much more securely and has less tendency toward vibration.

3. So far as I can safely say, I believe the most practical way to replace worn or otherwise defective rings, is to put new ones in as the defective ones show up. I don't believe a general replacement periodically would be economical, if that is what is implied in this question.

4. As to the question of burnishing rings. I may be misinformed on this subject, but it seems to me that it is not a general practice for a mill to burnish the rings. However, "Bert" may have in mind the washing of the rails and rings, which is the custom in many mills. This should be done about once a year, and is accomplished as follows: Two long tanks are used, one filled with hot water and the other with a strong solution of ammonia, or potash, whichever happens to be on hand. The rings and rail are soaked in the liquids for a few minutes, then transferred to the hot water tank. They are then removed and dried in pine sawdust. They will come out clean and as bright as when new. The liquids should be kept as hot as possible at all time. The advantage of washing rings and rails is in the fact that it frees them of any oily or gummy matter and leaves them looking like new.

5. The rings should be turned over by all means when they become worn. They are just as good as new when turned, and there is absolutely no detrimental effects from turning rings. Throwing away double flange rings when only one side has been worn can be compared to discarding a first-class two-pants suit when one pair of trousers are worn out.

6. The question of changing travelers at stated intervals can only be answered in a somewhat vague way. There are so many factors to be considered, such as speed of traveler, weight of traveler, size of ring, size of flange, etc. When it is desired to change travelers in this manner, however, about six to eight weeks seems to be the average life of the traveler. Some mills leave it to the discretion of the spinner in changing travelers. The spinner changes those that are worn when she is piecing up ends.

7. The best method of spindle setting is as follows: A good reliable man should be entrusted with this work, and should do nothing else. The frames should be set in rotation, as it is much easier for the overseer or second hand to keep tab on the work. It also eliminates any possibility of any frames being overlooked. As to how long a frame will run before requiring resetting all depends on the condition of the frame. A new frame will run about two years before the spindles need resetting. After that spindles should be set about once a year.

8. General opinion seems to favor the round-point traveler. The round-point traveler seems to have a tendency toward easier running, consequently there is less wear on the rings. The same measures must be taken with square-point travelers and round-point ones, regarding breaking in a new ring or when changing old ones. In both cases it is always advisable to run lighter travelers than are usually used until the rings have been used for some time.

9. Regarding the question of using flat-top travelers to catch strings and bunches, the flat top traveler does hug the rings closer, and it seems as though it should help in removing these uneven spots from the yarn.

10. "Wavy" rings are most likely caused by the square-point traveler, more than by the round-point, and might result to some extent from tight tension on the yarn.

11. A traveler should be run as light as possible. The lighter the traveler can be run the more elastic the yarn will be. Of course, the traveler must be heavy enough to prevent excessive ballooning, and also to build a firm bobbin. A soft bobbin is undesirable, as it produces waste and necessitates more frequent doffing.

12. The self-weighted middle roll system seems to be coming into popular favor, as it allows a very close setting. In a good many cases the spread of the rolls is less than the length of stock being run. I don't favor self-

weighted middle rolls on anything coarser than 20s yarn. The small weights used should be about 2 1/2 to 3 pounds, depending on the counts. When hung on the lever of the Dixon type stirrups, the weight applied should equal about 20 to 30 pounds.

13. When the front roll is weighted and the middle and back rolls are self-weighted, the rolls can all be set under the length of staple, allowing the front roll to draft under the rolls.

14. The break draft on a spinning frame is usually about 1.076. I cannot say whether a change in the break draft on different systems of roll weighting would be beneficial or not.

15. When the three lines of rolls are weighted it is advisable to spread the rolls about 1/16 inch over the length of staple. When self-weighted rolls are used, set to the staple or even under the staple somewhat.

16. The frames, or rather the steel rolls, should be cleaned and scoured every six months. This should be done by a scourer and his helper, and frames should be scoured in rotation, it being easier to keep track of the work. The roll stands should have only a small amount of new grease in them after scouring the rolls. The rolls should be cleaned with card fillet, whiting and pumice stone.

17. A relative humidity of 60 per cent should be maintained. This, together with a temperature of 80 degrees, gives the ideal atmosphere for a spinning room. On coarse yarns a temperature of 70 degrees is considered sufficient.

18. The spindles equipped with oil reservoirs should be oiled every three weeks. When not so equipped they should be oiled every week. All fast motions should be oiled once a day. The top front rolls should be oiled once a day also. The two back lines of rolls should be oiled twice a day. The builder, lifter, bearings, brackets, etc., should be oiled once a week. When the spindles are set, it is a good idea to clean out the bolsters and replace the old oil.

19. It isn't such an easy matter to say how long bolsters will last, as it depends on the style spindle used, the speed, and also the amount of oil used, and the quality. The tension of the bands must also be taken into consideration.

20. The tape drive has every advantage over the band drive. The tape can be put on under much more even tension. It has a better grip on the whirl, causing less spindle slippage. The tapes also last several times longer than do bands. The weather does not affect a tape as much as a band, because the tape will not expand or contract in anywhere near the proportion that a twisted band will.

I hope the foregoing answers will fit into the needs of some of the readers, and if "Bert" has any more questions as good as the ones he has shot across, he is playing us a mean trick if he holds them back. It is surprising how hard you have to think to answer a few such questions. A person could write for hours on things that come into his mind, but when answering the old direct questions it certainly scatters the dust in the attic.

C. C. (N. J.)

J. F. LOCKEY, superintendent of the Liberty Cotton Mills, Clayton, N. C., has resigned to return to his former position as superintendent of the Raeford Cotton Mills, Raeford, N. C.

An Interesting Slasher Test.

EDITOR COTTON:

It has always been a hobby of mine to study the slasher and try to obtain as much information from this much abused process in the mill as possible. In fact, I consider it one of the most important duties of the superintendent to carefully watch each day the results that are being obtained from the slasher. No matter how good yarn may be made it certainly can be spoiled by improper slashing Time and study given to the slasher will be returned to the superintendent many fold in better results.

I have always been particular to have the yarn run on the slasher as slack as practical trying to avoid pulling the life out of the yarn so to speak. For we know that to every material there is a point in its elasticity above which the material is weakened where it will never regain its original strength and elasticity. This certainly applies to cotton yarn. So I have always been an ardent advocate of the positive drive for the cylinders on the slasher, which, I think, helps to retain the elasticity of the yarn being run over the cylinders.

One day I hit upon the idea of trying to determine the amount of stretch that occurred in a set of yarn being run

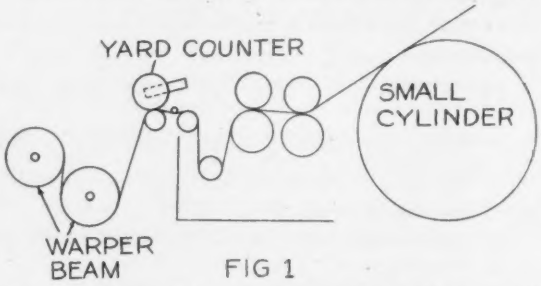


FIG 1

on the slasher. This was very easy if I could measure the yards that were run on the back of the slasher and also measure the yards delivered at the front of the slasher.

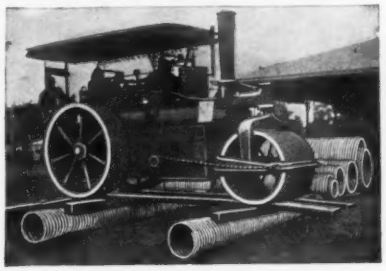
I got an ordinary wheel counter and mounted it on the back of the slasher as shown by illustration Figure 1. This counter was the type that makes two revolutions to each yard. It may be fixed on an arm either to the hood or to the immersion roll top, depending upon the slasher arrangement. This answers for the means for measuring the incoming yarn.

For the yarn delivered this was taken from the cut marks, in my case each cut mark measuring 132 yards and this was checked up and found to be correct. So we have the means for obtaining the yards delivered.

The set was put in on the slasher and the counter set to zero just as the cut mark came over. The set was run out and the record kept of the cuts made. The following results were obtained.

	Yards Fed	Yards Delivered	Yards Gained	Per cent
Test No. 1....	20,451	20,988	537	2.62
Test No. 2....	20,526	20,988	462	2.26

From the face of the test we readily conclude that the yarn was stretched a little over two per cent. However, this is not the case, for the yarn when it left the warper was 21,000 yards long. So when it is unwound at the slasher there is very little tension on it and it contracts about 500 yards as will be seen from the yardage fed. What we get at the front of the slasher is about the same



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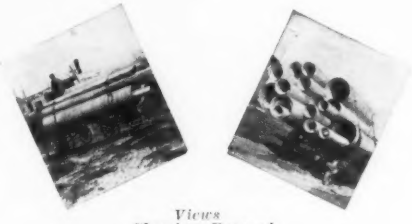

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as what was delivered at the warpers. So what really takes place is that the yarn contracts some 500 yards and then is stretched back to its original length.

You may be sure I was considerably surprised when I studied the results of this test. This test was made on a set of 3688 ends of 33s warp yarn with a Saco Lowell slasher with positively driven cylinders. Others might try this test and see what results they get and perhaps they might find where some of their weaving production percentage is going to. W. J. R. (N. C.)

Figures for the Weaver.

EDITOR COTTON:

I note that "E. T. (S. C.)" asks how to figure the reed, number of warp and filling yarn, contraction and shrinkage, in a piece of army duck to be 30 inches finished width, weighing 12.4 ounces per yard, with 47.5 sley by 30 picks of filling per inch.

Assuming that the contraction is 6 per cent and that the shrinkage is 6 per cent, I will proceed as follows in the solution of this problem:

The ends per inch multiplied by the width of the fabric will give the ends in the warp:

$47.5 \times 30 = 1425$ ends in the warp.

The ends in the warp multiplied by 100 and divided by 100 less the percentage of take-up (in this case 6 per cent) gives the yards of warp yarn in one yard of cloth.

$$\frac{1425 \times 100}{94} = 1515.96 \text{ yards.}$$

The percentage of warp and filling in the fabric is determined as follows: Ends plus picks divided by either ends or picks per inch will determine the percentage of warp or filling:

$$\frac{47.5 + 30}{47.5} = 61.29 \text{ per cent of warp yarn}$$

$$\frac{47.5 + 30}{30} = 38.71 \text{ per cent of filling yarn.}$$

To determine the count of yarn in the fabric, given yards of yarn per yard of cloth, contraction and weight of yarn:

$$\frac{1515.96 \times 16}{840 \times 7.6 \text{ (weight warp yarn)}} = 3.799 \text{ or } 3.8\text{s warp}$$

single count.

To make a 5-ply yarn, $3.8\text{s} \times 5 = 19\text{s}$ 5 ply.

The weight of the warp yarn given in the preceding calculation is figured as follows: One yard of the fabric weighs 12.4 ounces. As shown, 61.29 per cent of the fabric is warp yarn. Then 61.29 per cent of 12.4 ounces = 7.6 ounces, weight of warp, leaving 4.8 ounces as the weight of the filling.

To determine the width of warp in the reed, having shrinkage and finished width, proceed as follows:

$$\frac{30 \times 100}{100\% - \text{per cent shrinkage}} = \frac{30 \times 100}{94} = 31.91 \text{ or}$$

32 inches in reed.

To determine the filling yarn in one yard of cloth, proceed as follows: Picks per inch times width in reed gives yards of filling yarn in one yard of cloth:

$30 \times 32 = 960$ yards of filling in one yard of cloth.

To determine the count of filling yarn use the same formula as in the warp calculation.

$$\frac{30 \times 32 \times 16}{4.8 \times 840} = 3.809\text{s or } 3.8\text{s single filling.}$$

To make a 5-ply yarn, $3.8 \times 5 = 19\text{s}$ 5.

To determine the reed number, divide the ends in the warp by the ends per dent times the width in the reed:

$$\frac{1425}{32 \times 3} = 14.84\text{s reed.}$$

It should be remembered that contraction and shrinkage vary in regard to sley and picks, yarn numbers, and other conditions. CONTRIBUTOR NO. 3191.

EDITOR COTTON:

In reply to your correspondent who asked, in a recent issue of COTTON, for a way to figure the reed, number of warp and filling and contraction on army duck to be 30 inches wide, weighing 12.4 ounces per yard, 47½ sley and 30 picks:

This piece of goods can be made from single yarn or two-ply yarn. In the following calculations I have used 3-ply warp and 4-ply filling, as I believe this will make a nicer piece of goods.

There is no fixed rule that will work on this goods as regards contraction. However, I am sending an organization as I have worked it out. The matter of yarn number is more or less one of judgment, or of running the numbers down to give the correct width. There might be some small difference in the spread and contraction from the way I have it figured.

To find the number of reed, I divide the total ends by the ends per dent and divide the number of dents in turn by the reed spread to get the number of reed to use, thus:

$$\frac{1437 \text{ ends}}{3 \text{ ends per dent}} = 479, \text{ number of dents.}$$

$$\frac{479}{31.75 \text{ reed spread}} = 15 \text{ dent reed. (Or 22.6 dent reed}$$

with 2 ends per dent).

I arrive at the weight of the warp as follows:

$$\frac{1437 \text{ ends} \times 1.10\% \text{ cont.} \times 16 \text{ ounces}}{12/3 \text{ yarn} \times 840} = 7.52 \text{ ounces,}$$

weight of one yard of warp, or 62.4 per cent of weight of goods.

I worked for the weight of the filling as follows:

$$\frac{31.75 \text{ spread} \times 30 \text{ pick} \times 16 \text{ ounces}}{16/4 \text{ yarn} \times 840} = 4.53 \text{ ounces,}$$

weight of one yard of filling, or 37.6 per cent of weight of goods.

CONTRIBUTOR NO. 4406.

The Revolving Flat Card.

EDITOR COTTON:

It has often occurred to the writer that the revolving flat card does not at the present time receive the proper care and attention that is necessary to such a machine which is a most important asset in the preparatory process of spinning cotton yarns.

Strange though it seems, we find that neglect, carelessness and ignorance on the part of those in charge as well as those tending the machines are the main reasons for this lack of proper treatment to a good many sets of revolving flat cards. On the other hand, there are more mills, no doubt, where the whole of the carding machinery is under

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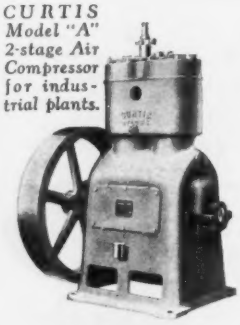

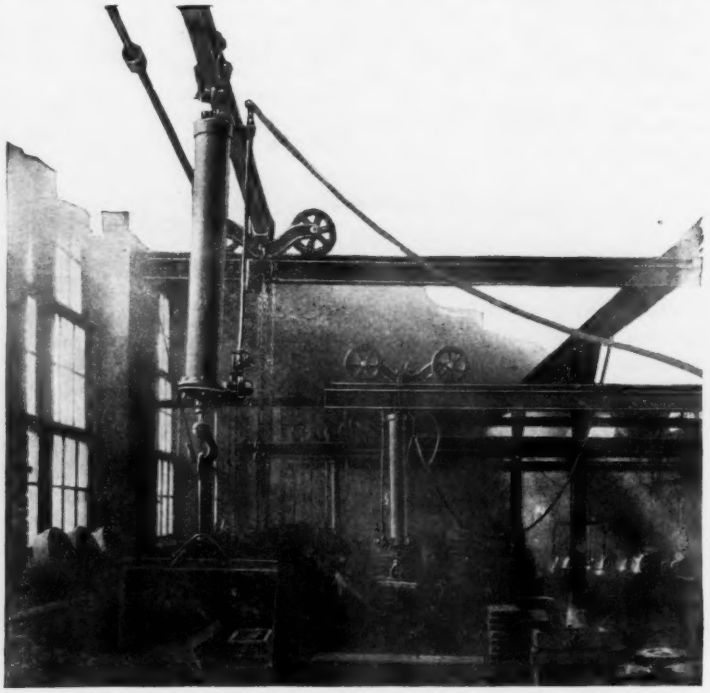

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strict supervision, but what the writer has in view is to point out some errors which have been noted in years of experience, and if possible, to give just a few pointers on the general care and management of cards.

First, let card grinders or those in charge of carding sections fix firmly in their minds that the sole function of the card is to produce the best possible sliver, that is, clean, even in weight throughout, and also free from nep and other impurities. To obtain the aforementioned product, every care should be exercised in the operation of the machine. Cleanliness cannot be too freely emphasized and practiced in the carding section of any cotton mill.

A great many of us are forced to admit that cards are not always kept as clean as they ought to be, and this to some, may seem but a trivial matter, especially in mills where, say, a dirty grade of cotton is being used, but cleanliness, as far as possible, in the latter mills is just as important as in any other using the better grades of stock, that is if satisfactory carding is to be obtained. This cleaning is an important factor. For instance, let those in charge of carding sections keep a vigilant eye on strippers who sometimes are careless in doing jobs which are of dirty character such as drawing the "low fly" or dirt from under the card. It is generally known by cardroom men that this job is very often not executed in the proper manner, sometimes through ignorance, or worse than that, namely, neglect.

This should be done at least once a day and in addition to drawing the "low fly" or dirt from under the whole of the card, that is directly from under the doffer, the under casings or screens should be brushed clean of any "fly" which sometimes hangs from same, by means of a long-handled, stiff brush, shaped like an ordinary hand brush but considerably longer; say about four feet long, including the bristle surface of about nine inches, the bristles being five inches long and very stiff.

It is not an uncommon practice for some strippers to, as it were, skip over the important yet dirty job of stripping the card cylinder and doffers, where the stripping brush is used and where the patent vacuum strippers are in operation.

It has often come to the writer's notice that many strippers on revolving flat cards do not always take the trouble to insure that the card is properly stripped and clean enough to receive a new load, which ought to be received from the licker-in by a clean main cylinder and likewise perfectly clean doffer cylinder, both of which after being stripped of all impurities are bound to help more efficiently in carding, providing the wire points are in good condition, also the settings in good shape. The latter will be dealt with in due course in this article. But how often does it occur that through either neglect on the part of strippers, or perhaps imperfect setting of the stripping roll or brush, the cylinder and doffer wire is left choked with seeds, etc., and only the short fibers or anything near the surface of the fillet is stripped off? This has occurred and undoubtedly does happen at the present time on some carding sections, and if this practice is not checked serious results to the fillet will obtain.

Let grinders and others enforce the rule of perfect stripping of cards at regular periods, at least three times a day of ten hours.

Neglect in stripping will also occur where vacuum stripping apparatus is employed, especially when these are not kept in good mechanical order. Take for instance the

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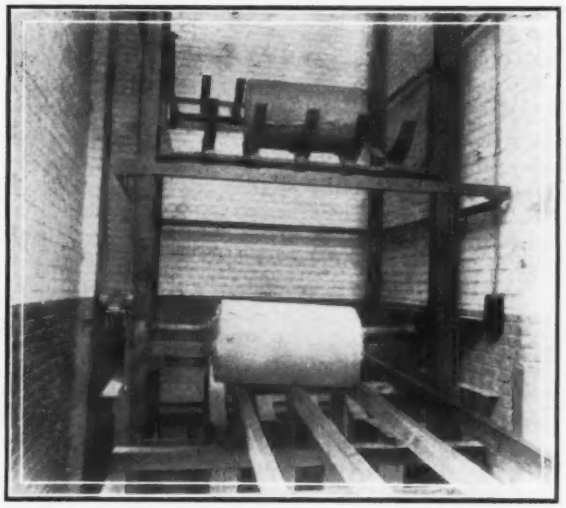

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type of vacuum stripper which is driven by either a belt or rope; in the case of a broken belt or rope it has been known that some operatives while stripping would operate the worm shaft which drives the stripping pipe by hand carelessly, thereby missing portions of the surface of the fillet, the result being a series of stripes around the cylinder or doffer. This error, of course, calls for prompt attention to ropes and belts on these patent stripping motions and also that they be kept in perfect order regarding the condition of the worm shaft setting of stripping pipe to the wire, oiling, etc.

We sometimes find that "card tenders" (those who tend the front of the machine, doffing, etc.,) are a little slack in their duties, especially in the matter of cleanliness.

They should be acquainted with the good habit of cleaning the front of the card, keeping doffer combs clean to prevent any unnecessary accumulation of waste and also permit a more even delivery of the web from the doffer to the calender rolls. This is most important, and though the performance of keeping the "fronts" clean is so simple and easy, it is surprising to know how much the practice is neglected, though this job ought to become a habit with tenders.

Another point in regard to the duty of card tenders is, that they should be thoroughly acquainted with the correct way of piecing up the sliver in the event of breakages, which must be done fairly quick in order to prevent unnecessary waste and also when there happens to be any sliver in the can, they should always piece the sliver being delivered to the sliver in the can with an even, not a hard piecing. When this is neglected it only means more work for the drawing tender.

Grinding.

The next, and perhaps the most important duty in keeping cards in good order is the grinding or sharpening of the points of the wire fillet on the main cylinder, doffer and flats. The grinding of the licker-in is usually done on a special grinding machine, which is fitted with a special dressing tool.

The grinding to be dealt with in this article is the practical work which should be performed frequently and efficiently on every set of cards. Now judging from the various sets of cards which have come under the writer's notice, it has thoroughly convinced him that there are some card grinders who are perhaps a little careless or wanting in efficiency. However, all good grinders should know the touch of a good "edge" on the wire points.

They should understand what this "edge" really means to the efficient carding of cotton. This point is necessary in order to ascertain if the wire is in proper condition for the execution of its true function in the carding process.

It is of little or no use to set grinding rolls haphazardly, grind the wire for a certain period, and then to change to another card, without ascertaining whether the wire on the former machine is properly ground and has the required "edge."

If the cards are clothed with hardened and tempered steel wire, a number 40s or 7s grade of emery fillet ought to be used on the rolls. If the clothing is a mild grade of wire then use number 5s or 6s emery fillet. It is always advisable for grinders or carders to keep a vigilant eye on their grinding rolls in regard to their being properly balanced, and also that they traverse freely in the case of disk rolls, and also that the traverse motion on long or dead rolls be in good condition. The true balancing of the latter is most important, because if this is not correct, serious results will occur to any wire being ground. If, for instance, such a roll is used on a very bad cylinder or doffer wire, this same wire will certainly be found to have been ground into a condition, which is known as being "hollow," that is, the wire will be ground more in the center of the cylinder or doffer, or perhaps the flats, whichever part such a roll has been grinding. To know when a roll is out of balance is not so easy for the inexperienced, so these rolls should be tested by the proper authority periodically. Above all the emery should be changed before it is really completely worn out, that is before it shows the bare cloth. Many men do not seem to realize when emery loses its grinding capabilities and if they see plenty of emery grains on the cloth though perhaps that has been in use for months, they do not see the necessity of a change. This is a mistake. If the emery shows signs of smoothness, change it, because that emery fillet is only polishing the wire points of the card clothing or wire fillet, and therefore doing more harm than good.

Setting Grinding Rolls.

It is very common to see in some mills, (and the writer is certain of this) some grinders in the habit of setting grinding rolls by ear, that is, listening for the hiss of the emery on the wire. They imagine that by this method they get the same amount of "hiss" on either side of the machine, and equal across the full width of the wire. Now this is a dangerous practice if good grinding is the aim. To set these rolls we must use our gauges in the proper manner. In setting the disk rolls take a 5/1000 inch leaf gauge and place between the roll and the respective wire, and set the roll to that gauge along the full width of the wire. Do this to both rolls before starting up the card, and very little trouble will be experienced with the unevenly ground clothing which hinders the possibility of perfect settings between the various points. This same method should be applied when setting the long roll to the flats, after ascertaining that the flat grinding motions are in working position and one flat is lifted in position ready for the roll.

The 5/1000 inch gauge should be used as in the case of the other rolls, and by listening to several flats while they are turning under the roll, in order to make any slight readjustment on the grinding roll brackets. This should be only very slight, if any at all. One most important item concerning this flat grinding is to always take extreme care that the grinding motions are in good shape in every way. Slightly worn parts which come in contact with flat ends cause a considerable amount of trouble if not corrected, as often it occurs that the flats, or perhaps only some of them, are not brought in contact with the roll as is intended for true grinding. The writer has seen some bad examples of neglect of this kind.

Card Settings.

There is a good rule regarding this important work of setting revolving flat cards in use among many old carders of the writer's acquaintance and that is "when you are setting cards, set every point as near as possible without those points touching." That is a good idea, but it also calls for skill and practice, though it has always been found practical, to the writer's knowledge. Still we know that different sets of cards have different classes or grades of stock to cope with and perhaps it is best to adopt settings suitable to any particular stock. The only time to set or adjust the various points on the revolving flat card is when the cylinder, doffer and flats have been ground as afore-

mentioned, and when these are clean and free from dirt, etc.

In the performance of this setting it is wise, if possible, to choose a time when the other machines are not running, as it is easier to detect any rubbing which may occur even though gauges have been used, more especially between the flats and cylinder.

Now having finished grinding the card to be set, that is the cylinder, doffer and flats, which latter ought to be ground at the same time as the other parts of the machine, all side panels should be removed in order to facilitate the examining and possibly setting of the main cylinder undergrid or screen. These setting points are usually three in number and one, in the rear on either side of the card, enables the adjustment of the licker-in screen together with the cylinder screen. This point is sometimes a little awkward to adjust and it requires care in order to obtain the desired effect without causing any damage to either screen.

Having decided on the gauge by which to set these, say 22/1000 inch or whatever is suitable to the class of stock, this gauge should be inserted through the slots provided. Set the rear setting point first, and this point should be adjusted on both sides equally before proceeding with the center point or the one toward the front of the card. Having adjusted these setting points it is always well to turn the cylinder, and also the licker-in, by hand for a few revolutions in order to ascertain any signs of rubbing of those parts on the under screen. If this occurs, a little easing-off can be applied at the particular point, at the same time having the cylinder and licker-in revolved slowly.

The next point to be adjusted ought to be the back plate, after which the front and stripping plates should be adjusted. These are very important parts of the revolving flat card which are often neglected. Many carders or grinders consider that these plates do not "get out of setting" but it is surprising how easy this occurs, especially the front plate. It is very easy to throw a front plate or a stripping plate "out of setting" by the banging of the front covers when closing these after stripping the cylinder. Continual banging will, regardless of any other damage to the door, probably cause the plate to rub on the cylinder. These front plates and stripping plates are sometimes both adjusted by one adjustment on either side which moves the segments on which the plates are fitted. Others have a separate adjustment for each plate, which is the better way to have them.

However, to adjust these plates, taking the back-plate first, the licker-in will have to be removed and this enables the cleaning and thorough examination of the licker-in screen. It is also wise to remove at least one flat which will enable the insertion of the gauge above the back plate. This done, the latter can be adjusted to whatever gauge is decided upon by means of adjustments at either side of the card, say about 17/1000 of an inch. The front plate is much easier to adjust and this is done as previously mentioned, but where it has a separate adjustment from the stripping plate it is usually set closer to the cylinder than the latter.

Now, having cleaned the licker-in screen thoroughly, using kerosene and drying out with whiting, the licker-in should be re-scrubbed, and the bearing caps set down properly so as to ensure that the licker-in is in the proper bearing. Now the licker-in may be adjusted first to the main cylinder, then the feed-plate set up to the licker-in carefully and evenly across the full width. After setting these parts all nuts on adjustments should be securely locked. This also applies to the "holding down" bolts on the licker-in bearings and feed plate. Having set these, the doffer cylinder is set to the main cylinder at whatever distance is chosen, say 7/1000 of an inch gauge, and then the doffer comb should be adjusted to the doffer cylinder at about 12/1000 of an inch to 17/1000 of an inch.

Last, but not least, the flats should be adjusted to the main cylinder, and this adjustment is very important. Most carders have their own ideas concerning the setting of flats, but here the writer will deal with the way which he has always found successful and beneficial. By this method of adjusting flats to the main cylinder it is advisable, first of all, to ease every one of the usual five setting points by means of unscrewing the bolts holding each bracket which supports the flexible bends. In doing this we assure more freedom of movement to the flexible bend, on either side of the card.

Now a certain flat is decided upon in order to make adjustments, and on either side of this flat one or two flats should be removed in order to allow freedom in using the finger gauge. Having done this, the whole of the flats are turned by hand, using the handle usually employed, to the point at the rear side of the machine, and this point is adjusted first always, but the writer advises that the flats should be set not as close at this point as at the other, because at this point the load of stock received by the main cylinder is at its greatest, and it has been known for flats which were set too close, or as fine as the other four points, to break under the load.

However, having adjusted this point, the main cylinder should be revolved by hand, in order to detect any signs of the flats, or cylinder rubbing, which sometimes occurs even when the gauge has been used.

Now turn the flats until the flat which is being used for adjusting is brought to the next point and repeat as before, only of course obtaining a finer adjustment at every point. After every point on the flexible bend has been adjusted, they must all be securely locked, then the cylinder is revolved by hand in order to detect rubbing and to allow a gentle pressure to be applied on the backs of those on the flexible bend, by which means a good idea of their setting can be obtained.

On replacement of the removed flats the card is ready to commence its work and to perform the function of cotton carding in good shape.

Having placed these facts regarding the care and management of the revolving flat card before the reader, the writer hopes that at least some of the younger card men will gain some benefit, though there is a great deal more to be said regarding this excellent machine.

D. E. (R. I.)

An "Old Timer" Appreciation.

EDITOR COTTON:

I wonder if "Old Timer" has any idea he is preaching the law of compensation? His articles have the ear marks of a mate who directs the right tack at every turn. He is doing the readers of COTTON a great deal of good, making it clear in his articles that those who will not *do*, cannot *win;* also, a man can have it *easy* in early life by paying for it with *uneasiness* in later life. It is the law of compensation.

I received the following lines through the mail, and think they are worth printing in COTTON, for they outline

the character of "Old Timer's" articles. The heading reads: "Keep This in Your Pocket as an Incentive for Success."

The easy roads are crowded,
And the level roads are jammed;
The pleasant little rivers
With the drifting folks are crammed.

But off yonder where it's rocky,
Where you get a better view,
You will find the ranks are thinning,
And the travelers are few.

Where the going is smooth and pleasant,
You will always find the throng;
For many, more's the pity,
Seem to like to drift along.

But the steps that call for courage,
And the task that's hard to do,
In the end results in glory
For the never-wavering few.

WASH (R. I.)

The Care of Belts.

EDITOR COTTON:

Just recently I read a few lines in COTTON on the care of belts. As belting is an item of considerable expense to any mill I would like to pass along a few points on the subject through the discussion department that I have acquired from various sources. A lot of it is very practical every day stuff and the rest is the kind of information that is nice to know.

To begin with, when putting on a new belt, it shouldn't be put on under too much tension at first, but should be run as loosely as practical for a day or two until it becomes more flexible. It is a good idea to put a little castor oil on the new belt to make it grip and also to help in making the belt more pliable. After a new belt has been run for several hours it will stretch considerably and run very loose. Then the belt should be cut and castor oil applied once more. The amount that a belt will stretch depends solely upon the quality of the leather.

As the belts collect fly, etc., on the running surface they should be cleaned at least once a week by the section man or the oiler and a little castor oil should be applied at the same time. For those who have had no experience using castor oil as a belt dressing, let me suggest that it be used quite sparingly or else the belts will slip off, and a lot of time will be wasted in drying the belts off thoroughly before they can be run again. Don't allow any of the operatives to apply soap to the belts as it does more harm than good. It makes a sticky mess out of a belt in a short time.

The best method that I know of for cleaning belts is to use a block of rubber about one inch by two inches by four inches. Press this firmly against the running surface of the belt and it will do very good work. Some men have the belts cleaned with a piece of card clothing on a wooden block, but this scratches the surface of the belt.

Rosin or any commercial belt dressing of a resinous nature should never be applied to the belts. It is true that they will cause temporary adhesion to the pulleys, but after a short time the surface of the belt becomes glazed and consequently the belt will slip worse than it would if dressing had never been applied.

Sometimes a belt that still has months of useful service in it becomes saturated with lubricating oil. This can easily be removed.

First clean the belt thoroughly, then pack it in dry sawdust for three or four days. At the end of that time place the belt in new saw-dust for the second time and allow it to remain for a day or two longer. This is a very easy and efficient way of drying out the belt.

Immersing grease and oil soaked leather belts in gasoline for four or five hours will also remove all trace of oil, but I believe this method to be somewhat detrimental to the welfare of the belt. The saw-dust packing is by far the best and cheapest method and is absolutely harmless.

If the foregoing methods are carried out persistently it will be found that not only will the belting expense be reduced considerably, but production will automatically slide into high gear and stay there.

Thin belts do not wear nearly as well as thick belts. There are two reasons for this. First, the thick belt is naturally the stronger and the other reason is that a thin belt will "slap" or run wavy on the slack side and this condition is detrimental to the life of belting.

I presume that a good many readers will be equally surprised and interested to know that steel belts have been run to some extent in Europe, with a fair degree of success. According to statements of the manufacturers of these belts a four inch steel belt will transmit as much power as a leather belt 19 inches wide. I don't believe these belts were ever tried in the mills, but I write this merely as a matter of interest.

Below is a rule for finding the length of a leather belt when the pulleys are nearly equal in diameter. This rule is an approximation only, but is fairly accurate.

Rule:—Add the diameter of the two pulleys, divide the sum by two, then multiply the quotient by 3 1/7, then add to the product twice the distance between the centers of the shaft. As an example, suppose we have the following conditions:

Diameter of large pulley = 22 inches
Diameter of small pulley = 20 inches
Distance center to center of shafts = 10 feet.

$$\frac{(22 + 20)}{2} \times 3\,1/7 + 20 \text{ feet} = 25\tfrac{1}{2} \text{ feet length of belt required.}$$

The foregoing rule is applicable to drives only where the shafts are parallel to each other. I do not know of any rule for finding the length of a belt on an angular drive, such as is used on a speeder.

So long as we are on the subject of belting we may as well go a little further and discuss the question of cone belts. I presume most men have tried all kinds and styles of cone belts, and each has his pet make that seems to answer the purpose. However, as I don't remember ever reading an article in COTTON on the subject I hope the space taken up will be well utilized.

I have had experience with several different makes, most of which are the newer type with the two inch belt on the outside, and a narrow driving belt of about one inch width secured inside the wider one.

There is one make that has the narrow driving belt

stitched inside the wider one. This works well enough when it once gets going, but it is so stiff that it is very difficult to start up while new. Extreme pressure on the bottom cone, in most cases, is required to prevent slippage until the belt has worked a few inches up from the small end. The worst feature that I have found on this belt is that the stitches work loose and the narrow belt becomes separated from the wider one.

One maker of the stitched cone belt uses rivets in the belt every few inches to prevent the two belts from becoming loose. The main objection that I find with this belt is that it slips when the rivets come in contact with the cones. The rivets also stiffen the belt to a large extent.

The most satisfactory cone belt that I have had experience with as yet is a double belt that is fastened together every inch or so with very small pins. This belt is also treated to render the leather very pliable, making it a very easy matter to put on a new belt and get it started without the least trouble.

The best of this style to my knowledge is of English make and is also treated chemically to make it stretchless. While it is not absolutely free from all tendency to stretch, I will say that it does not stretch any more than 25 per cent of what an ordinary cone belt will stretch. The side of the belt that is in contact with the shipper wears down much more slowly than do other belts.

One thing that gets my "angora" is, if an English firm can manufacture a cone belt that is as nearly perfect as we can hope to get, why can't an American firm make an equally good product? Too bad we have to send three thousand miles for a good cone belt.

I have also watched the performance of several rubber belts, that is, with several plies of duck coated with a heavy rubber layer. These proved to be not so good. There is very little slippage, but they wear very fast. The friction of the shipper wears away the side of the belt in no time. C. C. (N. J.)

"Know Thyself-"

EDITOR COTTON:

Last Saturday at closing time, after reading "Old-Timer's" article in the December issue of COTTON about a man getting old on his job, I began to think of myself, and wonder whether I was getting old on the job. I reviewed the work of the past week and contemplated the work for the coming week. I have made it a practice for a good many years to take an hour of meditation just after closing time on Saturday, and find this is a good habit. I can think over the happenings of the week and review them in a considerate, detached manner, and arrive at whether I have erred, and if so, to try to profit by my mistakes. We must get away from our work at times and look at it from a distance.

Thinking over last week's work, I discovered one thing I did not regulate on my last analysis of the different departments in the mill. I've been noticing for some time in the cloth room that when certain folders were at the machines, they had their wives grading after them. When another folder was at the machine, there was another grader. What was this for? On some other occasions I happened to know there would be picked another grader who was a relative of the folder hand.

Now, we do not believe in overloading any woman, but there is another side to the matter. The company for which we work pays us to perform a certain amount of work, and each machine is designated to turn out just so much per day. That work is not over-estimated—it is figured on a fair day's run. This machine should perform its regular production, and no partiality should be shown anyone by shielding them from the regular production the machine should turn out.

This I failed to call to the attention of the cloth room overseer, and I suppose he did not notice it in the placing of his help. These things arise and it pays the overseer to watch them closely, and rectify them before some of his operatives call it to his attention. That makes it embarrassing, as the help know it has been called to his attention and he is practically forced to change things. Whereas if he had been on the lookout he could have made the change without anyone knowing it and undue advantage would be taken of no one. It's just one of those things which must be kept up with daily in order to be a good manager of help and to get a regular daily production.

This brings to mind an article I once read in "Trained Men," the official organ of the International Correspondence Schools, which gave the following:

"Ten Commandments for Foremen and Job Foremen."

(1) Be an optimist. Confidence is infectious.
(2) Make few promises. Keep every promise made.
(3) Every question has two sides. Always hear both.
(4) Study your men. Put each where he can do his best work.
(5) Never show discouragement. A stout heart will never say die.
(6) Don't hold spite. Correct when necessary, but forgive afterward.
(7) Notice good work as well as bad. Give both credit and blame justly.
(8) Be fair. A foreman often has to act as judge, and therefore must be just.
(9) Control yourself. Anger is too valuable to use except on special occasions.
(10) Take your full share of the blame. Sharing both blame and praise with the workers is big part of the secret of managing men.

The mechanism of machinery has been developed to where it is a small factor—the one big thing is to handle the operatives to the best advantage. All operatives respect a good leader who plans well the work for the future, makes the machines run, and gets a good production. A man might be promoted by accident, but only fitness can keep him there. CONTRIBUTOR NO. 14.

Fly Frame Discussion.

EDITOR COTTON:

I owe a little explanation to "Wash," as well as to the other readers of COTTON who are interested in the discussion which has been going on in the "How Other Men Manage" department for the last few months. I have been kept very busy since my return to China last June, which is the reason why I did not write this letter a little earlier, as I had first intended.

My article entitled "The Roving Frame Speed," which appeared in the August, 1924, issue of COTTON answered in advance most of the points "Wash" brought forth in his

"Frame Speed and Cone Outline" which appeared in September, 1924, COTTON. It is the hope of the writer that he will clear up some of the other points set forth in "Wash's" article, as well as some points in "Wash's" "Roving Frame Cones and Equations" which appeared in the October, 1924, issue of COTTON.

Let us take them in order. First comes the criticism on my statement, "It makes no difference whether we get it by the combination of (290 — 280 = 10) or by the combination (100 — 90 =10), does it? The above fundamental equation 1 is fulfilled in both cases." I was "away off" according to "Wash's" estimation simply because I was talking about the relative speed, while he was thinking of the absolute speed. And then he went on to assume that I never saw a fly frame in operation on high and low speeds. I advise the readers to study the difference between the *relative* speed and the *absolute* speed of machine parts and they will easily see whether it was "Wash," or whether I was "away off."

"Wash" wants to know which is the bottom cone, (a) or (b). The answer is, either will do. It should not be hard to understand a simple equation (or formula) for pulleys. Therefore I will not waste the reader's time in the clarification of it.

It should be a very easy matter to understand why many, in fact limitless, points can be expressed by one equation. Also, why many different curves can be plotted from one equation if the scale is varied. Remember, the fact that such a thing has been made cannot be a proof that it must be right. I know very well that some manufacturers have tried to modify the cones to suit their flyers, but I also know the result they have obtained.

"Wash's" explanation of "some necessary factors in the designing of cones" on page 1162 of the September, 1924, COTTON is certainly interesting, but I am wondering how he explains himself in the two statements in the same article—"On the other hand, I have always found Mr. Parker's work correct in every way." And—"This should be proof enough that not only the type of the flyers knocks out "H. H. Y's" equation—." If he means what he says, I think he can find my equations in Mr. Parker's book, only in another form, if he will take the trouble to do so. If that is the case, what does he mean by saying that he found Mr. Parker's work correct in every way?

I will answer only two points to his letter in October COTTON. First, "Wash" took the wrong view of an equation. An equation in this case was used as a formula. "A formula is a relation established by reasoning among certain quantities, any one of which may in turn be regarded as the unknown. A formula, it must be observed, includes all particular cases in one general statement, and so by the use of a single algebraical formula we are enabled briefly to express a whole class of results in a form at once simple, easily remembered and easily applied." (Definition by H. S. Hall and S. R. Knight.)

Secondly, I will give a little hint as to the difference between the pressure of the paddle caused by either a weighted presser or high speed—which "Wash" regarded as the same from the way he put it. The difference is that in one case the variation can be expressed by a straight line equation, while in the other it cannot. I will leave the working detail to the readers. In fact I have given enough equations to prove these points.

I want to again announce that only strictly mathematical proof will be accepted by the writer. "Wash's" two letters cannot be accepted because of their lack of consistency.

H. H. Y. (CHINA)

Progressive Card Flat Setting.

EDITOR COTTON:

The article by "Bab (N. C.)" in the January issue of COTTON in reference to the setting of card flats is not fully explained, therefore remaining an unsettled issue. To my mind, however, the best way to set the flats is to get the cleanest work and at the same time to draw down and parallel the fibers as they should be for the doffer comb blade to receive them is to set the flats nearest to the licker-in farther from the cylinder than the ones nearest to the front of the cylinder, or the stand closest to the flat stripper comb.

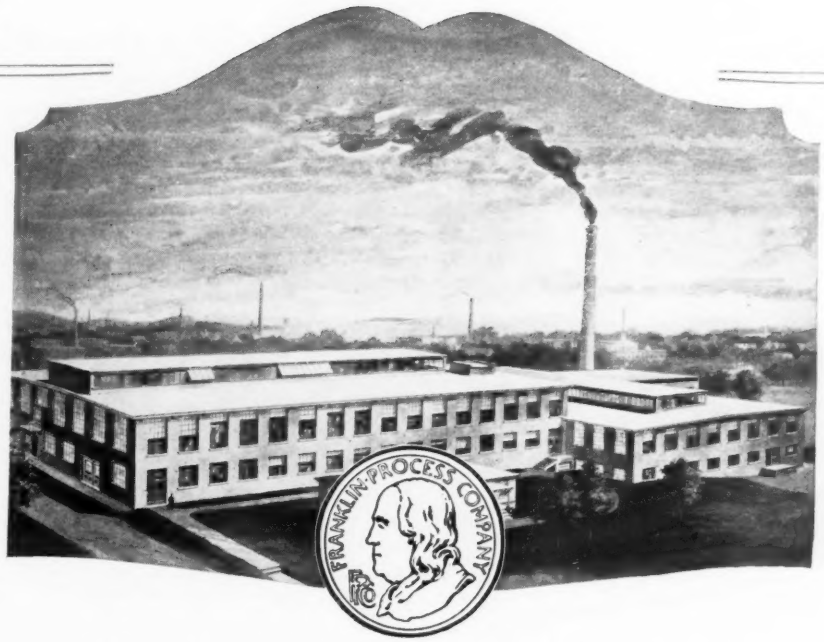
I take the position that when the cotton is first taken in at the licker-in it is in a fuller or thicker sheet and needs to be drafted according to the thickness of the sheet, for it certainly is in a more gross state and needs to be drawn and blended down to somewhere near a 100 draft on the cards. It has always impressed me that the nearer the sliver was to the doffer's taking off place the finer it should be to be worked down to its proper state before the doffer could take it off and deliver it. That being the case, the last card flats the cotton comes in contact with should be set closer to make sure that the flats are close enough to act on the finer worked cotton than the first flats were when the cotton was a thicker sheet. The licker-in takes the cotton in in small bulky sheets and lumps. It cannot be as fine a character in appearance as when the doffer takes it off; then something has to be done to get this desired sheet.

In a sense, to take the stand that all flats should be set the same gauge from the cylinder is in part doing away with the idea of drafting down the cotton to its desired weight on this particular machinery. Take the rolls on any of the other machinery where drafting is to be done, and the roller which first comes in contact with the stock does a bit of drafting, and I note that in the latest experiments experts show where an equalizing of the drafting of the stocks is showing up superior to our old methods; then why not an equaling of this attentuating on the cards? It is plain enough to any man to see that the stock that the doffer takes off is carded finer than that the licker-in takes in, and as the stock gets thinner or finer it surely stands to reason that the settings must be closer.

It may be called progressive settings or anything else desired, but that which makes the cleanest, smoothest slivers is the best, especially after all the recommended settings have been tried, taking into consideration the machinery used and the class of cotton to be run, the desired quality that must be put out to suit the market, etc., the best settings are those which accomplish the best results. Let the theories drift where best suited.

With reference to the loose or tight gauges on a card, will say there is just as much reason to believe that there can be a loose or tight rope used on anything as on a gauge. A tight or loose gauge can be used on anything desired, and I believe that cards can be gauged to tight or loose gauges. I have done it, and at present am on some cards where I cannot get to them to replace the clothing, having them set on slack gauges from the standards.

CONTRIBUTOR NO. 14.



ANNOUNCING

A NEW Franklin Process Plant at Chattanooga, Tenn., which offers prompt, efficient commission yarn dyeing service to all manufacturers within shipping distance. This new plant, with a capacity of 30,000 pounds per week, has been located about one mile from the center of the city in proximity of two large mercerizing plants with a view to giving quick deliveries of dyed mercerized yarn to the hosiery trade of Tennessee and vicinity. (The hosiery mills in this territory have in the past obtained dyed mercerized yarn in large quantities from the Southern Franklin Process Company of Greenville, S. C.)

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As in all other Franklin Process plants, all yarn will be dyed in the wound form. The dyed yarn will be delivered to the manufacturers in the convenient Franklin package, or, if desired, it will be rewound to cones or paper tubes.

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STOP the Onrush!

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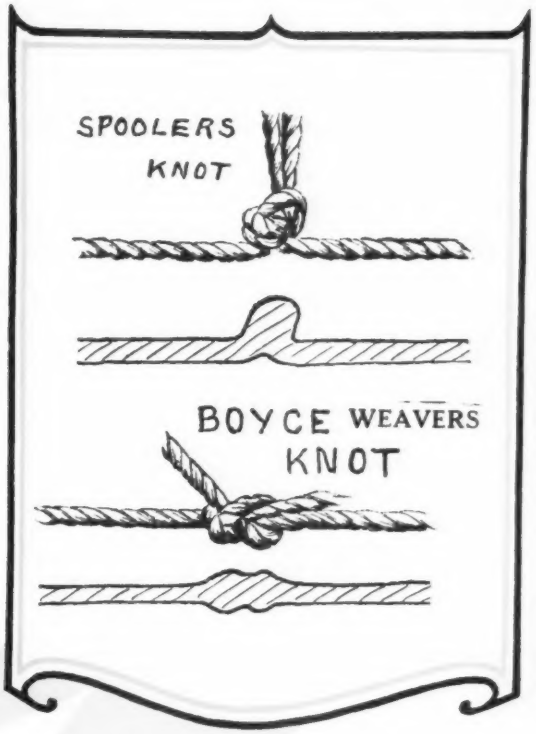
BOYCE Weavers



Look at the difference between the Improved Boyce Weavers Knot and the old-fashioned spooler knot. (The illustration is on a proportionate scale.) No wonder the spooler knot causes so much trouble on the loom and is impossible to imbed into the cloth!

Whereas the Boyce Knot is tied perfectly every time with even ends—nearly twice as fast as the spooler knot method. Don't bother with slip knots and those big fluffy knots that absorb your profits. Go over the top with Boyce Weavers Knotters and watch the big decrease in seconds, the remarkable increase in weave room production, and improved character of cloth.

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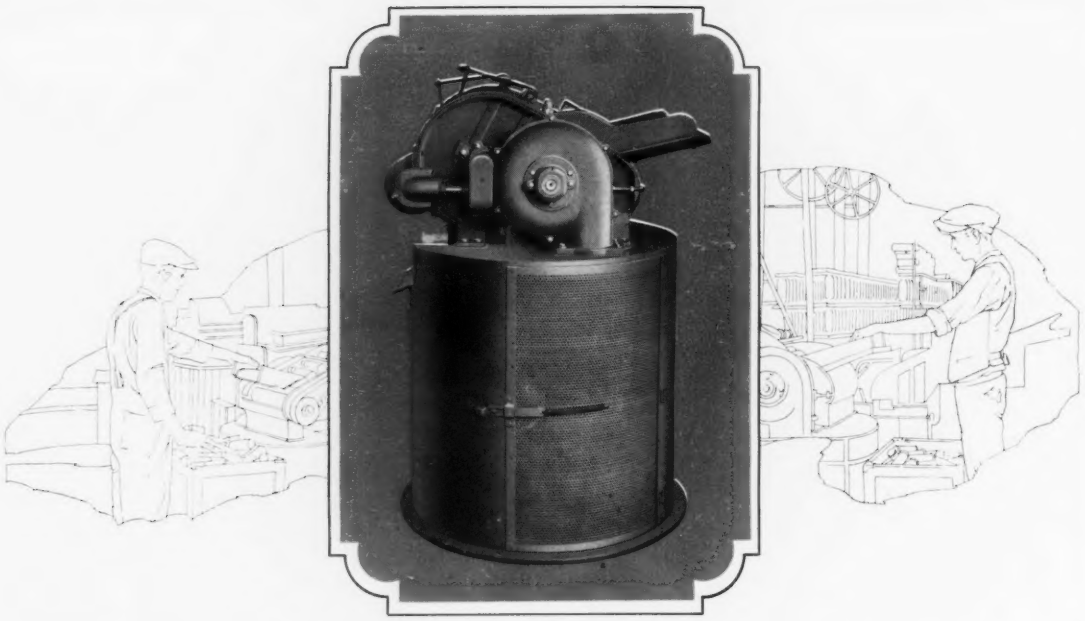

Do 130% to 314% annual returns actually mean anything?

Surveys made by an independent engineering organization show a Termaco roving bobbin cleaner annually returns 130% of its cost to a 12,000 spindle mill and 314% to a 44,000 spindle mill.

Such percentages might not mean much if they only represented the amount saved in roving waste, the saving by not cutting the staple, the saving in bobbins, etc.; but they represent the savings effected *after* depreciation, interest on investment, repairs and maintenance cost and power and labor charges *have been deducted.*

When it is stated a Termaco returns 130% to 314% on its cost, a *net* annual return is meant. This is why the cost of a Termaco should be figured as a short time investment and not as an expense.

Whether your mill is small or large, a Termaco should pay for itself, and show a handsome net return on its cost, *the first year it is installed.*

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TERMACO

ROVING BOBBIN Terrell CLEANER

Underclearers on Spinning.

EDITOR COTTON:

Will some mill man give me some information about underclearers on spinning frames and how to keep them running? Do they let slubs get through? What do the readers think about them? How often should they be cleaned?

Perhaps someone will ask, "What are underclearers on spinning?" They work under the middle and back rolls.

I will be very glad of any information on this subject through COTTON. C. S. F. (ALA.)

An Opinion on Drawing Frames.

EDITOR COTTON:

We hear a lot being said about cone outlines for fly frames; bobbin and flyer lead frames; and what puts the twist into the yarn, the spindle or the traveler; but it seems that little attention is paid to our ill working drawing frames which, to my way of thinking, is a place which causes much uneven work. When railway heads are altered and made to operate as the delivery of a drawing frame, I advise running only six ends up at the back as on the drawing frames. The large draft that exists on railway heads is mostly the cause of the latter producing weak yarn. It is often seen that a railway head has a draft of 8 to 10 inches. Still, the very men that would have such a large draft on a railway head would not have the drafts in after processes to exceed seven.

It should be understood that a large draft on a railway head is as injurious to the fibers as a large draft on a fine frame. Very few overseers give this long drafting much consideration. Picture in your mind eight drawing slivers passing under the drawing action of four lines of drawing rolls to the trumpet. Think of the bulk of stock that the front roll is called upon to pull away from the bite of the second roll.

To make this clear, an examination of the operation in detail can be profitably made. The first thing to determine is what drawing is intended to do. It has a twofold object, but the second is really a result of the first. Drawing is intended to reduce the number of fibers in the cross section of the combined sliver fed to a definite extent and as a corollary to place these fibers in the resultant sliver in a practically parallel order. To effect the first results the increasing velocity of the various lines of rollers is necessary, and when combined with a proper relative setting of the centers of the rollers is practically perfect.

The last named point is really the most important, and an improper setting of the rollers results either in broken or imperfectly drawn fibers. The theory underlying the whole process is that of exercising such a pull upon the fibers as will enable them to be straightened and cause them to be disposed longitudinally in the finished sliver. It is obvious that if the fibers were laid even partially crosswise in the sliver the greatest part of the advantage of drawing would be lost, for the strength of a thread depends upon the number of fibers existing in its cross section relative to its diameter, and it is, therefore, clear that unless they are drawn so as to lie lengthwise of the sliver the chances of a strong thread are materially reduced. It is therefore necessary to submit them to such a pull as will straighten but not break them, for when the fibers first reach the drawing frame they are from 5 to 10 per cent shorter than when they are presented to the spinner.

Roll drafting is no doubt the most important feature of parallelizing and attenuating in the production of good yarn. There are two kinds of drawing rolls: the leather covered rolls which are known as common rolls and the metallic rolls constructed of steel grooves and cut lengthwise in the surface of the boss of the rolls at certain intervals which determine the pitch of the rolls. The common rolls are driven by frictional contact from the bottom steel rolls, while those that are metallic are driven by the flutes of the lower roll meshing with the flutes of the upper roll, and consequently, a more positive draft is obtained than with the common rolls.

Attention should be paid to all knock off motions to see that they are in good working order and knock the machine off at once when an end breaks back so no singlings will go through. See that all parts are well oiled and kept well cleaned so that no clearer waste will get into the drawing and also prohibit slugs from going through. Then see that the top rolls are evenly weighted and all trumpets are of the same bore and right size. Take the frame down at least every six months and give it a general overhauling.

B. A. B. (N. C.)

Overcoming Uneven Yarn.

EDITOR COTTON:

This week I received from a friend of mine a letter stating he was having trouble with thick and thin roving and yarn, and had been unsuccessful in eliminating it. In answering him, I made some suggestions that had been helpful at my plant, and thinking the subject of interest, I am sending you herewith his problems as he put it up to me, together with my reply. If any of your readers have any further comments to make we both would be interested in having them write them to "How Other Men Manage."

My friend said that "on our fly frames, we find a difference of two teeth in the back and middle rolls, which would make a difference in the speed of the two rolls But we find by marking the top leather rolls with a lead pencil, and counting the revolutions of both rolls there is very little difference in the speed of the two top rolls; when there should be a difference in proportion to the speeds of the bottom steel rolls. Do you find a difference in the rolls, and is this a common defect with all fly frames? I think by the leather rolls not keeping up with the bottom rolls, lagging back, slipping, or whatever you call it, it causes a large part of our thick and thin places. Here is our line-up, so you might see if we are getting this trouble from some other source: Grade of cotton, Strict Middling. Weight of finished lap, 12½ ounces. Card sliver, 57 grains. Breaker drawing, 62 grains. Finisher drawing, 62 grains. Slubber roving, .45 hank. Intermediate roving, 1.00 hank. Speeder roving, 3.00 hank. Numbers spun, 14s, 16s, 10s and 11s.

To begin with—I told my friend in replying—one of the greatest causes for uneven work, in my judgment, is mixed staple, and none of the mills pay as much attention to this item as it deserves. Since we have this mixed staple, we have found it necessary—and I believe it ad-

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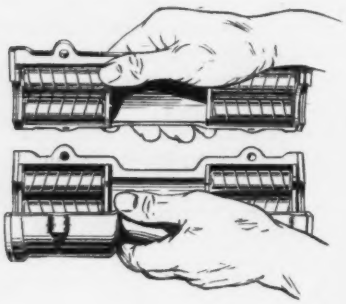

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visable for all mills—to arrange the opener room in such a way as to allow the opening and mixing of at least 50 bales in a pile at a time. This permits the cotton to aerate, and also a more uniform mixing from day to day is obtained.

I have found it necessary, in our picker room, to clean and oil the evener motions every Saturday. Unless this is done, more uneven work will be caused here than at any other place in the mill.

On the cards, we find it necessary to have a system of stripping so that all of the light stock, which occurs immediately after stripping, is not allowed to come through at one time; in other words, we strip the odd cards and later come back and strip the even ones, distributing these different strippings uniformly throughout the day.

We run our drawings out in sets, which we find is very helpful, as this cuts out fully ninety per cent of the piecing up of the ends on the drawing. Almost every time an end is put up on the drawing, either a thick or thin place results. Of course it is important to keep the stop motion working properly on the drawing so that when an end does break the machine stops immediately.

On the fly frames, I think we have effected a great deal of improvement by making sure that all bad rollers, particularly the middle and back ones, are kept out, and that all rolls are properly oiled. As my friend brought out, our frames have a slight draft between the middle and back rollers, and if the leather rollers are allowed to become dry, we find there is a certain amount of dragging or slipping, which causes uneven work, but as soon as these rolls are oiled, the middle one will immediately pick up and run at practically the same rate of speed as the middle steel roller.

I believe we have derived more real benefit in eliminating uneven work by giving the rolls on slubbers, intermediates and speeders careful attention than we have in any other one way. There is not much danger of running front rollers after they are bad, but I find there is a great tendency to allow the middle and back rolls to run too long, and I know that if all the rollers are not carefully oiled, regularly, uneven work will result.

We also found that we were getting some uneven work from worn pins in the flyers. We replaced these with new ones, and took out a great deal of lost motion or backlash; this matter of lost motion or backlash in the gearing frequently causes trouble all the way from the drawing through the spinning. Of course these factors do their damage usually at the time the frame is stopped or started.

Noting that my friend said he was spinning 10s, 11s and 16s from 3-hank roving, I pointed out that even in the case of the 16s he had a fairly short draft; and on the 10s I believe it was too short. I suggested that he would find some improvement by drafting less on the speeders and more on the spinning.

My friend and I would be much interested to have your readers comment upon this subject.

CONTRIBUTOR No. 4366.

J. F. ARMSTRONG has resigned as superintendent of the Wymojo and Helen Mills, Rock Hill, S. C., to accept a similar position with the Rex Spinning Co., Ranlo, N. C.

A. B. BROWN has become overseer of night spinning at the Priscilla Mills, Ranlo, N. C.

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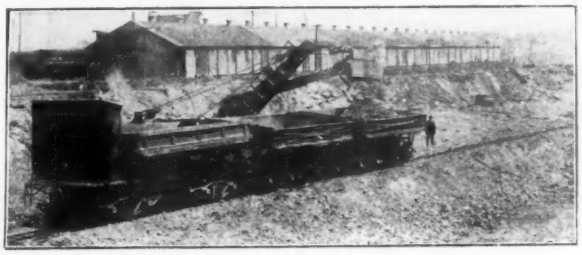

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The Roller and Clearer Card Problem.

EDITOR COTTON:

I would like to thank your "Contributor No. 622" for his useful hint regarding the cutting of the housing on my roller cards; "O. H. N." for his timely tip on grinding the fancy; "H. D." on his wire count advice, and also "444," all of which appeared in the September, 1925, issue of COTTON. And now a word to sum up the discussion. The chief points were as to whether the counts of wire were at fault, or whether it was the speeds and I wish to say that we have in a measure come to a definite conclusion respecting these matters.

In the first place, we had to contend with very dirty material, hence, the wire soon became full of impurities and therefore the 80s count was too fine and the 60s as recommended by Contributor "H. D. (Mass.)" is a step in the right direction, as the difference is 4400 points to the square foot, so the fancy can better get into the wire. The English makers sent a close wire (80s on the breaker cylinder and 90s on the finisher) with an open fancy. We decided to reverse this and put an open wire (60s and 70s) on the cylinders with a closer wire on the fancy. This showed very marked improvements. The speeds were found to be correct.

And now I want to add a word in respect to the paragraph by Contributor "H.D." Changing the speed of the doffer does not alter the draft, etc. This part of the proposition is interesting, and most people seem to think that the doffer speed must determine the speed or rate of feed, but why not reduce the side shaft wheel?

Think this out and you will come to the same conclusion as I did on the matter. Take the recent "new" waste card, having a double doffer so as to more adequately strip the cylinder. Suppose the doffer revolution is 8 and we increase to 16, equal to twice, and we half the side shaft wheel coming from a 36 down to 18. The production remains the same as the rate of feed is the same, yet we present a double amount of doffer surface to clear the cylinder, in my opinion doing exactly what the double doffer is supposed to do. What is the opinion of others on this?

Of course these figures are exaggerated for the purpose of showing the argument. In actual practice they were only increased from 8.8 to 12 and the results showed that it was a step in the right direction. CONTRIBUTOR No. 454.

Fly Frame Tension.

EDITOR COTTON:

In the September issue of COTTON "K. F. F. (Mass.)" writes an article on roving frame tension that is not clear to me. In the third paragraph he states: "The next thing to do is to start the cone belt at the extreme end of the bottom cone at the beginning of a set." "K. F. F." is wrong and the statement is misleading to all young students for this rule does not suit all cases. In the fifth paragraphs he states: "'G. D. S.' says that his ends run loose at the beginning of every doff and then run all right until an hour before the doff. This proves that he has too large a rack gear. Allowing these ends to run loose at the beginning of a doff is the cause of the ends being too tight and breaking at the end of that doff, because the instant that the ends are allowed to run slack a soft bobbin has begun to be made, and a soft bobbin increases

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in diameter and circumference faster than a hard bobbin. This increase is so slight that it does not show up until the bobbin is about three-quarters full. From that time until the end of the set the ends will continue to break."

"K. F. F." overlooked the pressure at the termination of the presser pad. The strand on all fly frames as it is laid upon the bobbin is of a less diameter, or occupies less space at the beginning than it does at the finish of a bobbin. This increase is very gradual but constant, and is caused by the pressure of the presser condensing the strand. This pressure is greatest when the bobbin is empty or small, and lightest at the finish or full bobbin. Cones are really so many separate pairs of pulleys connected together in a continuous string. Therefore, each layer of roving added to the bobbin must be considered separately and the diameters of the cones figured for that layer alone. With the foregoing in mind, if "G. D. S." had a rack gear to give the proper tension at the beginning of the set the tension would be tighter at the finish.

WASH (R. I.)

Finishing Tub Silk.

EDITOR COTTON:

Replying to your correspondent regarding the finishing of tub silk, a sample of which was submitted, beg to advise that I have my own opinion as to the best procedure but, not satisfied with my own ideas, I consulted several high grade silk dyers and finishers. It is their unanimous opinion that the goods should be desized before being finished or before dyeing. If desized before finished, the goods will have a better appearance. Instead of soap solution in finishing, most of the people use a soluble oil, something like Hydroxy oil for instance, after which it is dried on the tenter and calendered. CONTRIBUTOR NO. 14.

The new Hyatt line shaft roller bearing is an exact size for size replacement box. It is completely split for easy installation and fits any type of hanger. Although it differs in outward appearance from other Hyatts sold during the past 35 years the distinctive helically wound rollers are still employed.

The box is built in two sections, the lower part forming two-thirds, and the top, one-third. This brings the machined joint well above the oil level and prevents oil leakage. Tightening four bolts seals the section around a shaft. Bosses are staggered so that the top cannot be improperly fitted. A small wrench is the only installation tool used.

The Hyatt Roller Bearing Company, Newark, N. J., announces also the appointment of Howard E. Jernee as sales manager of the line shaft bearing department, succeeding Frank S. Cole.

A new catalog, T-66, descriptive of Reeves variable speed transmission, has just been issued by the Reeves Pulley Company, Columbus, Ind. It is fully illustrated, and adequately describes the construction details of the Reeves transmission as well as the methods of figuring installations. Many typical installations are illustrated.

It is not only a thoroughly practical catalog, but should prove a valuable reference work for the superintendent's book shelves because of the engineering information it contains.

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Dixon's Ticonderoga Flake Graphite. Ideal for cylinder and bearing lubrication, for coating gaskets, and for any other purpose where a superior graphite is desired.
Dixon's Solid Belt Dressing. A product that keeps leather belts pliable and decidedly lengthens belt life. Stops slipping instantly.
Dixon's Waterproof Grease. Protects and lubricates elevator plungers, pump plungers, gears, wire rope, and other parts exposed to weather or submerged in fresh or salt water. Will not flush off.
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Runs Seven Ends Up at Drawing.

Editor Cotton:

I am very much interested in the article by "J. J. (R. I.)" in the January issue of Cotton on the question of doublings. He has expressed my ideas on the subject as to whether this additional doubling at the drawing frames will pay or not. Some two or more years ago we received an order for some cloth which was to break so much in the warp and so much in the filling. We made a sample and presented it, which was okehed, but later they decided it was not strong enough and asked us to increase the breaking strength both in the warp and the filling. We were using about the best cotton we could afford to buy—one-inch Middling—so we went over all the places we could think of, trying here and there to get evener yarn; finally we decided to increase our doublings on the drawing frames; this we tested out on seven ends up on the back of the first and second drawing instead of six that we were running. Of course, we lengthened our drafts to make the slivers weigh the same as before and not to disturb any of the other machines. We took one first and one second drawing and ran this through all the way to the cloth and had it tested before putting any more drawing frames on, and submitted our sample to the buyers, who reported that it broke up satisfactorily. Then we went back and put all of our drawing frames on seven ends up at both first and second backs, instead of the six as before. This change showed at the breaking five per cent over the six doublings and since then it has maintained an average strength of five per cent gain.

I was naturally much interested in the brother's statements concerning doublings, because I had quite a time getting my people to approve of this doubling. They said, "you will have to lengthen your drafts, and we are afraid it will weaken instead of strengthening them." However, they were convinced (partly), after so long a time, that we were getting stronger yarn, though it seems now that they were living a little in dread.

In connection with this, I am going to give my little line-up from the opening to the spinning frames. We take the bale ties off of about 40 bales and keep that much ahead of the picking department. This gives it a chance to loosen up, and thus the fibers are in better shape for the next machines and there is less chance for split laps in the picker room. We have the blowing system, a Murray cleaner and an automatic distributor. We do not use our intermediates. This only gives us two processes of picking, and a 10½-ounce lap, 46 grain sliver (this is for 30s warp and 40s filling), and the seven doublings on the drawing frames, with a finished sliver weighing 57 grains; slubber roving .65-hank, intermediate roving 1.90-hank, warp roving 5.75-hank, filling roving 7.00-hank. This gives us a shorter draft by making a 7.00-hank roving for the 40s filling and makes it run so much better on the spinning. Of course this means that it is doubled at the intermediates and the speeders, and the spinning also.

In the third paragraph of this article, where the contributor says "we have only first and second drawing. The first doubles eight into one, the second, four into one. After going through the first drawing seven cans are run through again and one of these is run with three others through the second drawing," will say that this is not quite clear to me. It seems, however, that some of it is run through three different times, doubling back on the first drawing frames. If so, I should like to know just what per cent is drafted three times on the drawing frames.

Contributor No. 14.

At a guaranteed cost reduction of three million dollars, actual work has been started on the fabrication and laying of the steel pipe for the mammoth Oakland, California, project which will carry the city's entire water supply for a distance of ninety miles through the mountains from the Mokelumne River.

The entire savings of three million dollars will have been made possible through the fabrication of all the steel pipe by the Stable-Arc welding process, which has been developed exclusively by the Lincoln Electric Company of Cleveland, Ohio. At a price approximately thirty five per cent less than that bid by firms specifying either of the older types of riveted or back bar connections, the contract was awarded the Steel Tank and Pipe Company, of West Berkley, California, with the provision that Stable-Arc welding be used for connections throughout fabrication.

This job, which will be the country's first all-welded water supply line, has been made the basis for all sorts of tests to determine the adequacy of the Stable-Arc weld under adverse conditions, but up to the time of writing there has not been a single case of failure reported. This is a record of which the Lincoln Electric Company is justly proud.

Walter Slaughter has been made representative for the southern territory by Wickwire Spencer Steel Company, 41 East 42nd St., New York City, handling their line of napper wire and card clothing. He has headquarters with G. G. Slaughter in the Johnston Building, Charlotte, N. C. E. N. Welch recently was named Chicago representative for the company.

STATEMENT.

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912, of COTTON, published monthly at Dalton, Ga., for April 1st, 1926.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared W. J. Rooke, who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Pubisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, L. L. Arnold, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith, Atlanta, Ga.; E. P. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio.; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; H. H. Kelley, Atlanta, Ga.; W. J. Rooke, Atlanta, Ga.; T. W McAllister, Atlanta, Ga.; W. O. Rogers, Atlanta, Ga.; P. D. Hammett, Chicago, Ill.; A. E. Smith, Cleveland, Ohio.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are. None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 26th day of March, 1926.

(Seal) E. L. PHILPOT,
Notary Public.

My commission expires March 18, 1927.

Knitting Section

In step with the market

B-Vertical Floating Striping Machine

B-Vertical Floating Striper and Dot Machine

*B-6 Machine

*B-7 Machine

THESE machines offer a variety of styles and colors to meet all demands.

Simple patterns may be produced on these machines as well as the more comprehensive styles containing a multiplicity of colors, checks, dots, etc., incorporating in one machine the advantages of all these desirable features.

*Models B-6 and B-7

These machines are built with six and seven yarn feeding fingers, respectively. These machines are of floating vertical stripe design.

The vertical stripes are produced by groups of knitting needles knitting with one or two yarns used for plaiting, thus producing a perfectly clear and positive vertical stripe of a greater width than can be produced with reverse plaiting needles, particularly when using worsteds or soft yarns on coarser gauges.

The vertical stripes can be located throughout the circumference of the stocking as desired, by the use of jacks under the needles to produce the vertical stripe of the width desired.

These machines will produce repeated horizontal stripe patterns of any design up to 48 courses, if two or more course width stripes are desired. Repeated patterns up to 24 courses can be made if single course stripes are incorporated in the pattern.

The vertical striping attachment on these machines is so arranged that when making plaids or checked patterns small squares can be inserted in the middle of the check or vertical stripe.

The above machines can be set up for either men's half hose or ladies' hose, if desired.

Established 1865

SCOTT & WILLIAMS

Incorporated

366 Broadway New York

NEW ENGLAND SPUN COTTON YARNS

We Spin Cotton Yarns in All Numbers from 1's to 100's.

We Twist these yarns in Any Number of Plys desired from 2 ply up.

We Furnish these single or twisted yarns to suit your own particular purpose. Any Twist you say.

We furnish them on Cones, Tubes, Spools, Bobbins, Warps, Beams, Skeins—Gassed or Ungassed.

We can furnish the above from any Staple Cotton you desire.

COMBED and CARDED AMERICAN or EGYPTIAN

and behind all this an Organization that has been Spinning Yarns for Years and Years.

We recommend

QUISSETT QUALITY YARNS

SPUN FROM

EARLY BLOOM COTTON

QUISSETT MILL

NEW BEDFORD, MASSACHUSETTS

80,000 SPINDLE

QUISSETT MEANS QUALITY

The Knitting Convention and Exhibition

While the annual convention represents actually only a small part of an association's activity, at the same time an organizations' standing and value is more or less accurately reflected in its meetings. When considered in this light, the National Association of Hosiery & Underwear Manufacturers, as indicated by its annual convention held in Philadelphia on Wednesday, March 22nd, is in an excellent condition that is necessarily a result of a harmonious, progressive operating force.

The meeting was called to order at 11 o'clock on Wednesday morning by President Gustav Oberlaender. Held under the same roof with the Knitting Arts Exhibition, the meeting attracted a goodly number of delegates.

President Gustav Oberlaender.

Mr. Oberlaender first called upon Theodore H. Price, editor and economist of New York City, who discussed "The Business Outlook for 1926."

Declaring himself as no prophet, and saying that no prediction of the future is worthwhile unless a margin of safety is allowed, Mr. Price stated that he is hopeful for the future from the standpoint that the American people, individually and collectively, are coming to be more circumspect in the relationship of income to expenses. A proper balance here, he declared, will result beneficially for the entire country. Defining "prosperity" as "a state of mind" he pointed out that inflation and boom is not essential to prosperity, but that sane, conservative, thrifty operation of affairs influence it more than anything else. He spoke briefly, having left a sick-bed to attend the meeting, and returning home immediately after his address.

The first item of business was the report of the chairman of the finance committee, Walter W. Moyer, which was read by Treasurer Ernest Blood. Applause greeted the reading of the report, for it indicated a healthful condition in the Association's finances, and reflected a marked activity along other financial lines. In the report, Mr. Moyer said,

"The total income of the National Association of Hosiery and Underwear Manufacturers for the year 1925 was $53,916.95, as compared with $49,886.45 in the year 1924.

"The cost of operation of the Association Office, including its research work was $44,429.46, as compared with $40,456.28 for the previous year—an increase in expense of $3973.18.

"The Association had on hand at the end of the fiscal year $30,517.53, as compared with $21,030.04—an increase in the cash balance on hand of $9,487.40 over the previous year, in spite of the above-referred-to increase in expense.

"During the year the Association collected for its members over five hundred thousand dollars—a large proportion of this work being done absolutely free of charge as in matters of bankrupteies, dissolutions, etc.

"As Chairman of the Finance Committee, I take pride in stating that, in many instances when dividends in failures were to be between twenty-five and thirty cents on the dollar, by the Association taking an active part in the

President-Elect D. L. Galbraith.

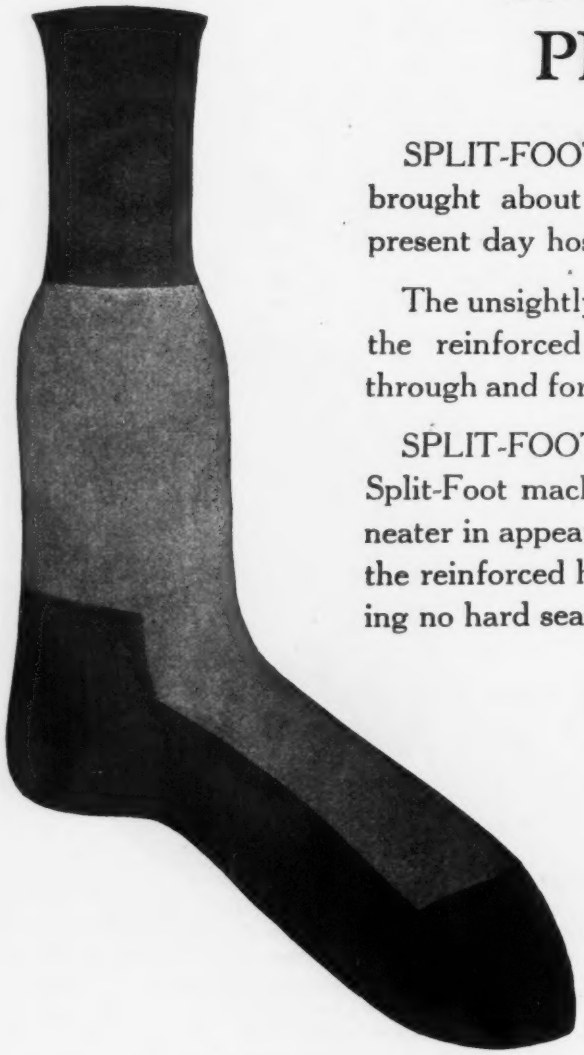
distribution, the estates, in many cases, paid between sixty-five and seventy-five cents. To my mind this was found money and bespeaks the efficiency of the Association, achieved only as the result of hearty cooperation on the part of the members."

J. B. Lesher, vice-president of the Association, and vice-chairman of the legislative committee, next reported for that committee, saying in part:

"During the year 1925 the Federal Trade Commission investigated the complaint which had been filed some two years previously in the matter of Federal Trade Commission vs. Real Silk Hosiery Mills. During the course of the evidence submitted, it was very apparent to those watching the interests of this Association that, unless intervention was made by the National Association of Hosiery and Underwear Manufacturers, there was a very good possibility of manufacturers being forced to use terms which would again change the entire Uniform Labeling Rulings

The "BANNER"

SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

WHY MAKE AN INFERIOR PRODUCT?

WE INVITE INQUIRIES

HEMPHILL COMPANY

Main Office and Factory

PAWTUCKET, RHODE ISLAND

New York Sales and Show Rooms
350 Broadway, N. Y.

Southern Office,
James Bldg., Chattanooga, Tenn.

Philadelphia Sales and Show Rooms
Colonial Trust Bldg., 13th and Market Sts.

of the Association.

"The Legislative Committee instructed Arno P. Mowitz, as Counsel for the Association, to intervene in behalf of this organization, and a petition was filed, a copy of which is being given to the press and is available at the office for all members to scrutinize."

The conclusion of Mr. Mowitz' brief in the case cited by Mr. Lesher was that "the term 'silk hosiery' designates a silk leg and lisle top, toe and heel stocking. The testimony, the absence of any consumer witnesses and of evidence of deceit or unfair practice all confirm this. It is properly featured in advertising. The makers of all silk stockings not only do not complain, but actually use and prefer to use the term 'all silk' as a mark which gives them a distinct advantage, and they themselves use the term 'silk hosiery' on their own lisle top products; the use of qualifying words is not a major feature, and their location and prominence in relation to the title is a matter solely for the advertiser to determine.

"If, in a given case, it should be shown that the use of qualifying words is such as evidence an obvious attempt to evade the fair intent of the requirement, then the matter can be dealt with appropriately. * * *

"It is therefore respectfully submitted that this Honorable Commission should make no ruling preventing the use of the term 'silk hosiery' and the like as applied to a stocking with a silk leg and lisle top, toe and heel, nor prescribe the position or degree of prominence to be given the qualifying words designating the cotton content."

The next report was that of George F. Dickson, as chairman of the membership committee, who said:

"The National Association of Hosiery and Underwear Manufacturers, during the year 1925 followed the same policy which it has adopted since changes were made in Association executives—December first, 1921—i.e., the policy of in no way soliciting membership for the Association. At first, this might sound like a rather bald, unusual and not altogether good policy.

"However, as Chairman of the Membership Committee, I believe it best to inform the members of our attitude in this matter.

"The theory this Association operates under is—that any man in this industry, if approached and told that he should bear his proportion of the expense of supporting an Association, which is at all times working for the benefit of the industry, would not refuse to join. However, when a manufacturer is approached on that ground and sends his check to the treasurer of the Association, invariably he looks upon this check as a charitable donation. At the end of a year's time, if business happens to be bad on the day when the annual dues of the organization come up for consideration, he invariably uses a blue pencil to cut expenses and writes in the records that the Association has done him no good. Naturally so; he has not given it a chance.

"Therefore, rather than secure members by solicitation, we have foregone the above-mentioned rather time-worn method.

"Our Association is a service unit to any member of the hosiery and underwear industry and will more than pay many times over, in dollars and cents, for the manufacturers' investment in it. Therefore, we feel that, when a manufacturer hears of the good work of the Association —which, in addition to its general work can benefit his organization—and he applies for membership, that man becomes the type of member that forms the background and makes for the success of an organization.

"During the year 1925 thirty-seven manufacturers applied to the Association for membership; two were rejected and thirty-five were accepted. The membership is larger than it ever has been in its entire history, in spite of the fact that, during the years 1924 and 1925, over fifty-two hosiery and underwear mills passed out of existence, or went into the hands of creditors' committees or the bankruptcy courts."

Secretary John Nash McCullaugh next read the annual report of the president, in behalf of Mr. Oberlaender, whose address follows:

"The year that has passed since the last general meeting of this association has brought the first really successful year to our particular branch of the knitting industry since 1920.

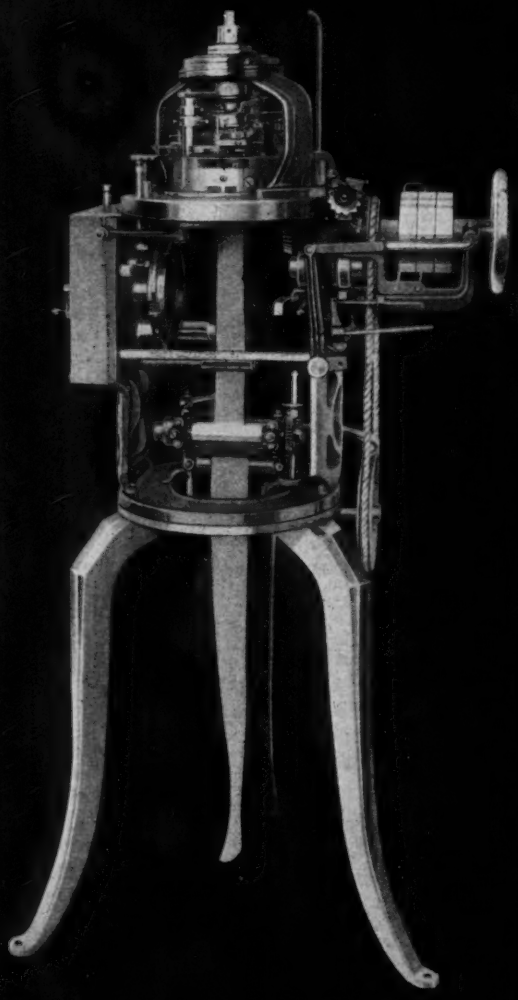
"The activities of our association, I am glad to say, have kept pace with the industry.

"One form of association activity which I, as President, am greatly in favor of, is that of arbitration. I am glad to report that during the year we arbitrated over fifteen cases involving amounts from one thousand to thirty thousand dollars. In every case the arbitration was accepted by the complainants as well as the defendant as being entirely satisfactory and most agreeable to all concerned.

"The association during the year sued three different jobbers for failure to accept merchandise after a bona fide order had been given and delivery made on time. The question of forcing merchandise upon a jobber is one that is not fully understood by the members of our industry. If the mill makes good delivery and perfect merchandise and the merchandise is rejected, it is necessary that an affidavit be taken of the man connected with the shipping department of a mill as to the merchandise being the same at the time of rejection as it was at the time of shipment. Procedure then is to assign your claim to your association. The association then sells the merchandise for the best price obtainable in the open market and sues the jobber for the difference. There is nothing difficult about securing judgment in cases of this kind, providing the procedure above outlined is followed to the letter.

"For the past year and a half the association had been operating an active credit department on a different basis than any other association. It is customary, when associations are seeking credit information, to write to the different members asking them to report the status and standing of a given account. This information while accurate insofar as to the records of the mill replying is concerned, is not always indicative of the present standing of the firm upon whom inquiry is being made. The National Association of Hosiery and Underwear Manufacturers employs an expert on credit who does nothing but investigate in the outside market in the same capacity as credit agencies investigate. This man has kept the losses of our members at an absolute minimum by reason of his excellent work, and I urge the members to use this bureau of information connected with this association. As you know, in addition to our credit investigator, this association issues annually a report on the various jobbers which represents the ledger experience of a large proportion of our membership.

"Time and again, both as president of this association



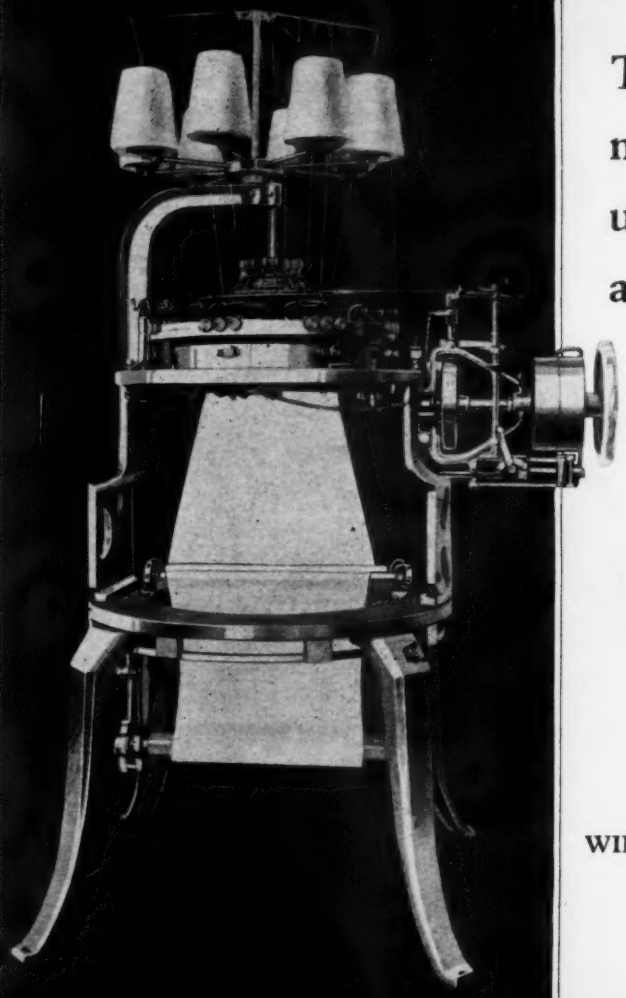
The name Wildman on Knitting machinery is a guarantee of mechanical excellence.

WILDMAN
THE WORLD'S STANDARD

WILDMAN MANUFACTURING CO.
Norristown, Pa.

We have issued a new edition of the complete and informative book, "The Science of Knitting." Price $2.00.

WILDMAN
CIRCULAR RIBBER



The solutions of many Knitting manufacturing problems are found in Wildman Machinery.

WILDMAN
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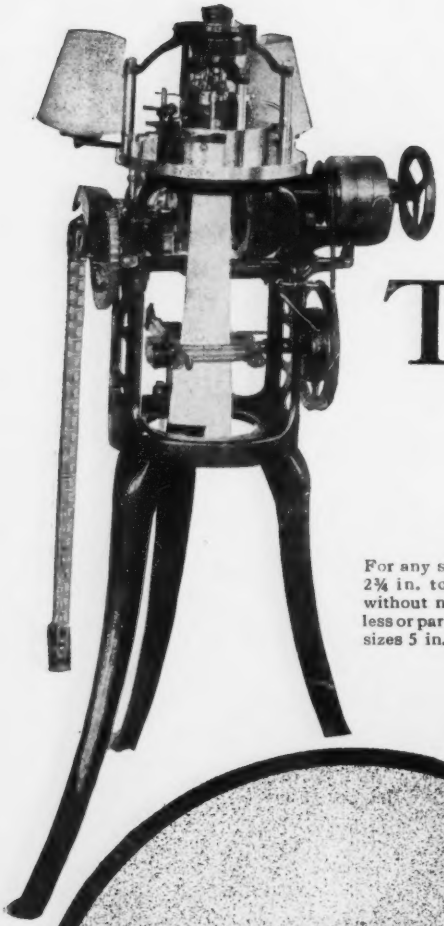
We have issued a new edition of the complete and informative book, "The Science of Knitting." Price $2.00.

WILDMAN
SPRING NEEDLE BODY MACHINE



True Ribbed!

For any size from 2¾ in. to 4¾ in. without new dogless or parts. Other sizes 5 in. to 7 in.

FIDELITY

Universal Hosiery Ribber — the latest development in machinery for producing true-ribbed hosiery tops. Better tops—more of them —and at lower cost.

FIDELITY MACHINE COMPANY

3908-18 Frankford Avenue, Philadelphia, Pa.

120 Broadway
NEW YORK CITY

James Building
CHATTANOOGA, TENN.

and treasurer of the Berkshire Knitting Mills, I have been asked the question: "What is wrong with the textile business as a whole?" The ills of the textile business are exactly comparable to the ills of other businesses in the United States today, i.e., a production capacity far in excess of the consumption capacity of the country. This production capacity was built during the war and post-war year. It is only natural that the consumption of today cannot possibly take the same amount of merchandise as was taken and consumed in those two years. The result is that business is traveling today in a series of peaks and valleys. We have an extreme period of quiet during which period shelves are emptied and then a years' boom, when every manufacturer proceeds to operate his full productive capacity with the result that in a short time there is again an over-production.

"In the case of a few industries this obstacle has been overcome—one being the building, and the other the automobile and luxury industry, the latter being helped through the creation of finance companies.

"Ours being a most essential industry, and, if I were to be facetious, I would say one that is in the public eye today more than any other industry,—we are bound to gain our share of the business cycle when it is on the upper trend.

"My feelings regarding the future of this year are that the year holds promise of being every bit as good as 1925. Labor is well employed; there is no inflation in commodity values; over-production has not been a dominant factor in the months of January, February and March; the farmer is obtaining a good price for his wheat and corn; car loadings have shown a steady increase; and, taking all in all, the business horizon seems promising and clear, but you must bear in mind that I do not care to think we are going right into a boom.

"I have tried to make my annual message as brief as possible, knowing that my listeners come here for the educational benefit of our exhibition.

"In conclusion, I wish to thank the Board of Directors of this Association for their hearty co-operation and for the time, energy and attention devoted to looking after the problems of our organization."

The concluding feature of the meeting was the election of officers, the nominating committee report being read by Joseph H. Zens, a former president. The report was unanimously adopted, which resulted in the following elections:

For President, D. L. Galbraith.

For First Vice-President, J. O. Wells.

For Second Vice-President, J. B. Lesher.

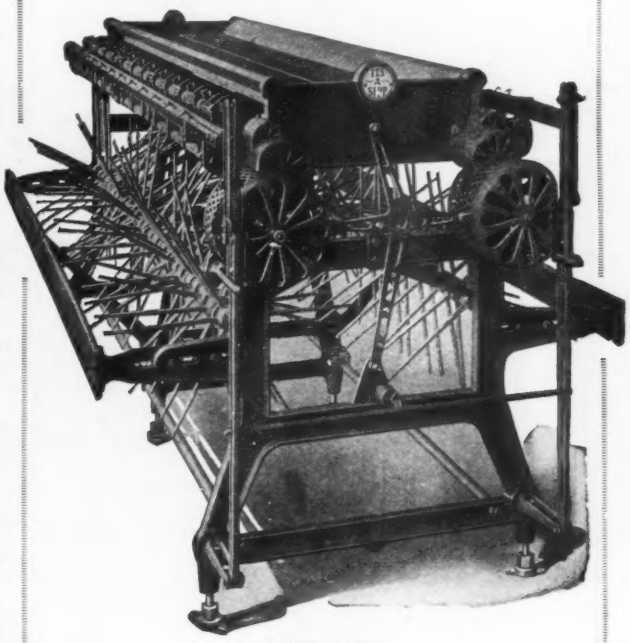
Directors for Two Years: R. C. Aycock, South Pittsburgh, Tenn.; Thomas W. Buck, Philadelphia; R. E. Tillis, New York City, and C. S. Kincaid, Clinton, Tenn.; the last two being new additions to the board.

In assuming the chair, Mr. Galbraith expressed his appreciation for the honor. Representing, as head of American Textiles, Inc., both the hosiery and underwear divisions of the industry, he declared it an aim during his administration to bring these branches of knitting closer together. Commenting upon the financial condition reported for the treasury, he stated that with a Scot as president, and another as secretary and manager, the financial side of the Association work was certainly in good hands during the coming year. Following a rising vote of thanks to the retiring officers, the meeting was adjourned.

WINDING

Warping and Special Machinery FOR RAYON

The Ideal Winder for Rayon. Can also be used for Silks and Single Mercerized Yarns.



TYPE—BO

Steel pipe frame construction and patented rigid traverse motion

An interesting model can be seen and explained at our office

THE SIPP MACHINE CO.

PATERSON ITS A SIPP TRADE MARK **NEW JERSEY**

Southern Representative:
G. G. SLAUGHTER
Johnston Bldg., Charlotte, N. C.

How White is a "Hound's Tooth"?

As permanently white as goods processed with Solozone

(A permanent white without weakening, soft, odorless and elastic)

Send for any of these interesting Booklets

"Make your own Liquid Peroxide"

"Efficient and Economical Bleaching"

"The Public want better Bleached Goods—Where can they get them?"

R&H CHEMICALS

We are equipped to process sample lots of any size under mill conditions and instruct the bleacher

The ROESSLER & HASSLACHER CHEMICAL CO.
713 Sixth Avenue
New York

The luncheon, which immediately followed the business session, was a most successful affair. The Broadway Serenaders entertained during the meal with popular orchestra numbers, and the main entertainment feature was provided by "The Happiness Boys," Billy Jones and Ernest Hare. Ex-President Zens presented Mr. Oberlaender, the retiring president, with a handsome clock, on behalf of the Association as a token of its appreciation and esteem. Following this, the convention was formally closed by the new president.

The Knitting Arts Exhibition.

Trade associations and exhibitions long ago established themselves as essentials in industry, and the Knitting Arts Exhibition held at the Commercial Museum, Philadelphia, Pa., from March 22nd to March 26th, inclusive, contributed materially to maintaining the importance and value of such occasions.

The show was held, as usual, under the auspices of the National Association of Hosiery & Underwear Manufacturers, and in conjunction with that organization's annual meeting, this being the 22nd annual convention.

There were several new developments exhibited for the first time at this exhibition, which attracted a warranted amount of especial attention. On the whole, however, the character of the show has taken such a trend as to make it well worth the while if it provided nothing further than a perennial inspection of refinements and improvements, and a contact between the various factors in the industry.

The character of the different exhibits gave an unmistakable demonstration of the influence that rayon or artificial silk is wielding in the knitting industry. Outside of an extended list of concerns furnishing this product in various forms who maintained reception spaces, this newest of textile fibers was in unescapable evidence in a great proportion of the operating exhibits, including those of knitting machinery and accessory equipment.

Chester I. Campbell, of Boston, was in charge of the exhibition again this year, and, with his corps of efficient assistants, lent his varied and extended experience in this business to producing an excellently staged, smoothly conducted, and profitable show for all concerned. The Campbell name is becoming synonymous with success in exhibition fields in the textile industry.

A step that was universally commended this year was the one taken by the Association and exhibition officials in holding the sessions of the convention in the exhibition hall. In times past, the convention itself was extended over a period of several days, and was usually held at some hotel or club in the center of Philadelphia, inconvenient to the exhibit hall. The result being disorganization and additional effort so far as attending both the show and meeting was concerned.

As a result of coordinated activity in the Association itself, the convention proper this year was condensed into one short session on Wednesday morning, which was followed by a luncheon that concluded the convention. Both the business session and the luncheon were held in one section of the show hall, allowing the visiting knitters to inspect the exhibits and attend to the deliberations of their association under one roof, with great convenience to themselves and profit to the exhibitors as well as to the visitors.

As an evidence of the popular reception accorded the new plan, fully a half hour before the time of the luncheon, seats were at a premium—and it is a safe prediction that next year, if a similar procedure is followed, those who waited until the eleventh hour to secure seats will join the others in making their reservations earlier with the secretary.

During the period of the meeting and luncheon, power was shut off in the exhibit hall, and active demonstrations ceased temporarily, inducing a larger attendance at these functions. At their conclusion, everyone interested was on hand immediately ready to examine the exhibition.

Although the show came at a comparatively full period in the trade, and exhibitors did not place undue hopes from a material standpoint, those participating seemed well pleased with the business possibilities created by the show. It must certainly be mentioned that while the attendance as a whole might not have been up to the gross totals of some previous shows, this years' exhibition drew an attendance that as a whole was an interested one. Furthermore it was very noticeable that the representation of knitting mill men from the South constituted a proportion of the whole attendance that was larger than the percentage last year, indicating a growing number of southerners taking in the show each year.

Following are outlines of a number of the representative booths at the show:

Aberfoyle Manufacturing Co., Chester, Pa., were repsented in practically the same location as usual, and greeting the friends of the company during the week were Edward Dale, Edward Golden, C. C. Harding, J. A. Holt, J. P. Holt, F. W. Sampson, and Mr. Hancock.

American Laundry Machinery Company, Norwood Station, Cincinnati, Ohio, had in operation five direct motor-driven Monel metal rotary dyeing machines, and two hydro-extractors. George G. Rups, manager, specialty department, was in charge with Paul J. Abrams, H. G. Mayer, W. C. Dodson, G. R. Schermerhorn, Fred H. Goosmann and H. C. Rembold also present.

American Yarn & Processing Company, Mount Holly, N. C., maintained a reception space with displays of their products, mercerized combed yarns which they spin and finish, with E. Hutchison, assistant secretary, and Daniel Whitehurst, of Mount Holly, in attendance during the show.

H. Brinton Co., 3700 Kensington Ave., Philadelphia, Pa., had seven machines in operation: a 3¼-inch, two-feed, 144-needle fancy top scarf type machine, with four-color yarn changer on each feed, and the Jacquard trick wheel device; a 3½-inch, two-feed, rib machine, with the Jacquard trick wheel device; a 3¼-inch, 240-needle French welt machine; a 3¼-inch, 240-needle, fancy half-hose machine; a 5-inch, two-feed, fancy top golf hose machine, with Jacquard trick wheel; a 9-inch, two-feed, four-color yarn changer scarf type machine, with Jacquard trick wheel; and an 18-inch, four-feed, rib machine with Jacquard trick wheel device. H. S. Horrocks, secretary-treasurer, W. H. Allerton, E. A. Corden, J. R. Forrest, and E. Newell were among the company representatives in attendance.

Cooper-Hewitt Electric Company, Hoboken, N. J., were exhibitors, showing a demonstration of their "Work-Light" together with photographs of this equipment installed in knitting plants. Charles F. Strebig, B. R. Grandy, H. G. Blauvelt, R. B. Clyman, and H. W. Ferree were in attendance during the show.

E. I. du Pont de Nemours & Co., Wilmington, Del., maintained their usual attractive display, featuring this year their new sulphur blacks and direct colors. An exhibi-

"Full Fashioned Hosiery Machines"

SCHUBERT & SALZER'S
HIGH SPEED, TYPE HSL
24 SECTIONS

The Utmost In Satisfaction

The preferred equipment for maximum production (on a quality basis), at lowest operating cost is—

SCHUBERT AND SALZER
TYPE HSL HIGH SPEED
FULL FASHIONED HOSIERY MACHINES

Maximum production is guaranteed by 24-section machines which produce up to 65 courses per minute. With such machines the operating cost is bound to be lower.

These machines are being used in ever-increasing numbers. Let us arrange for a demonstration at some point near you.

ALFRED HOFMANN, INC.

West New York *New Jersey*

tion of various colors for use in matching the prevailing light shades in leather was also made. An extensive showing of different textile fabrics made of Dupont rayon and dyed with the Dupont fast dyes also attracted attention. R. A. Carter was in charge, as usual, with W. G. Hamlin and Mr. McMarama representing the technical department. During the week, the following representatives were at the booth: C. C. W. Wilson, Carl Krug, Warren Thompson. W. C. Beattie, R. G. Franklin, Charles Hamil, and J. K. Burwell. Of the executive force, C. Proto, G. S. Gillespie, F. H. Clymer, Dr. Rose, Eric Monohan, Frank Bannon and Messrs. Remlin and Van Ripper were present.

Eclipse Textile Devices, Elmira, N. Y., showed an improved design of their random dyeing machine, the new feature being that water is used in conjunction with the dye instead of alcohol. With the new type, an extractor for removing the moisture from the cones is provided. New improved designs of the company's yarn cleaner and automatic stop motion for spinning frames were in operation. J. P. Gary, H. Van Ness, Lewis A. Nttrich, John D. Lutes, Benjamin F. Hasbrouck, Peter Brown and John Mann were in attendance.

Fidelity Machine Company, 3908 Frankford Avenue, Philadelphia, Pa., showed four Universal hosiery ribbers, equipped with the non-vibrating dogless, two-speed drive and other features, listed as follows: one 3½-inch single feed for silk plaited halfhose tops; one 3½-inch two-feed French welt ribber for half-hose tops; one 3-inch single feed with two color striper for infants' fancy socks; and one 2¾-inch single feed with four color yarn selector and changer for infants' fancy socks. As operators of the Rhode Island Braiding Machine Company, the Fidelity people also displayed one Duplex braider recently patented, which produces two sizes or two colors of braids on one machine. The Super-Cone thread guide was demonstrated, together with the Steere cuff turners for turning infants', children's and men's golf tops. H. W. Anderson, president, A. S. Johnson, southern sales representative, R. Z. Fuhrer, eastern sales representative, and Messrs. Larkin, Blaisdell, Sloan and Petrie were present.

Finnell System, Inc., Hannibal, Missouri, demonstrated several types of their floor cleaners, among them being the newer household type, and Nos. 20, 17 and 15 industrial systems together with mopping machines, tanks and auxiliary equipment. H. S. Jones, Philadelphia representative, H. J. Lindstrom, from the New York office, and H. A. Hicks were among the representatives present.

Fletcher Works, Inc., Second St. and Glenwood Ave., Philadelphia, Pa., had in operation a 48-inch Type VM extractor, equipped with ball bearing, improved braking facilities, safety cover, and other modern devices. The machine demonstrated was balanced in three-point suspension. W. H. Rometsch, Jr., A. Codingley, and H. Rahn were present during the show.

J. B. Ford Company, Wyandotte, Mich., maintained their usual display of "Wyandotte" chemicals and fabrics on which these products were used, including hosiery, bedspreads, yarns, etc. Fred S. Klebart was in charge, assisted by John W. Turner and E. Moyer.

Foster Machine Company, Westfield, Mass., exhibited in operation a new machine, their Model 101 high speed winder, coning mercerized, and worsted yarn for knitting, Also a Model 77 rayon cone winder. T. E. Connor, sales manager, C. B. Terry, P. W. Bridgman, and R. W. Ensign were present.

Franklin Process Company, Providence, R. I., in conjunction with their allied companies, the Central Franklin Process Company, Chattanooga, and Southern Franklin Process Company, Greenville, were showing samples of yarn dyed by the Franklin process, together with products in which these yarns were used. J. E. Beattie, sales manager, Greenville, S. C., and F. W. Hoesse of the Philadelphia organization received visitors at the booth.

General Electric Company, Schenectady, N. Y., showed during the week a two-reel motion picture which explained the processes of cotton manufacture as well as the methods of planting, cultivating and ginning. Various electrical equipment for use in the textile industry was on exhibit. Representatives of the Philadelphia office were in charge of the booth.

Grisman Company, 483 Broadway, New York City, were among the rayon houses exhibiting at this show for the first time. R. Grisman, Stewart McConaghy, and Mr. Moore of Chattanooga, were present. Featured was the Grisman bottle-neck cone in which the knots tied by the operative in winding the rayon are placed in the bottle-neck, submerging them from the surface and preventing the yarn hanging on them when being used on the knitting machine.

Hemphill Company, Pawtucket, R. I., showed eight different machines in their exhibit. One was a spring needle machine, on which a new system of feeding in the yarn, and of pressing in the sinker cap all the way through, were being demonstrated. Three machines making the horizontal and vertical stripe product were included, as was one machine on the sinker horizontal drop stitch, and a diamond machine making diamonds by means of float threads. A main feature of the exhibit was a split foot machine, with the plaited high splice and the corner of the heel taken away from the adjoining seam between the sole yarn and the silk. The new machine was a diagonal stripe machine, on which the stripe is made by reverse plaiting, the sinkers being controlled by wheels, one gaining and the other losing, and, it was pointed out, by putting different cams on the wheels to affect the different sinkers, a large variety of patterns is made possible. This, representatives stated, has never been done before on hosiery machines. John Lawson, president, Maurice L. Frost, vice-president, H. E. Gosling, southern manager, George McDowell, Robert Quinlan, Robert H. Lawson, A. Clotier, and Messrs. Gross and Kettlety were in attendance during the show.

Industrial Fibre Company, Inc., 148 Madison Avenue, New York City, had a reception and exhibit space in charge of Carroll G. C. Daley, sales manager. J. A. Glenn, southern representative, Richmond, Va., was present. Mr. Brooks was present as an expert knitter to offer advice and suggestions to visitors with reference to using "Industrial" rayon in knitting. Messrs. Knapp and Norris were also in attendance.

International Nickel Co., 67 Wall St., New York City, maintained an extensive display of Monel Metal equipment, mainly for providing a background as to the uses of this material in equipment for knitting mills. Commercial forms of the metal suitable for use in the construction of dyeing and other equipment were displayed. "Attract-o-scopes" were used for showing views of various installations, and of the construction of the equipment. E. A. Turner, W. J. Calnan, and George Raush were the company's representatives at the show.

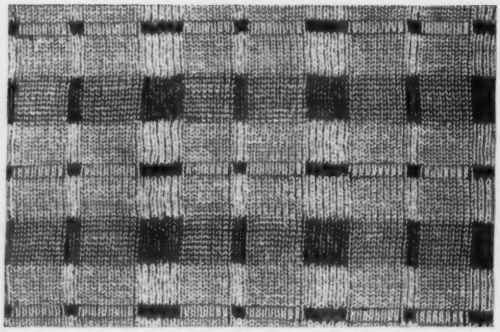


Fig. A

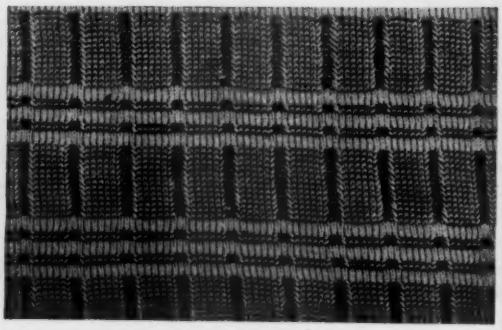


Fig. B

STANDARD H—ATTACHMENT M

There is no limitation to the flexibility of our horizontal yarn change striping attachment. Any combination of stripes in any widths, including pin stripes, can be produced. The pattern which is controlled by a chain can be changed in a few seconds while the machine is in operation. Either positive or reverse plated vertical stripes can be used in conjunction with this device. Fig. A shows a six-color pattern with the positive stripe.

STANDARD H-2F-F

Model H-2F-F produces distinctive patterns similar to the above illustration. This machine is exceedingly flexible, producing continuous or interrupted vertical tuck stitch stripes either with or without horizontal yarn change stripes. Its advantage apart from novelty designs lies in the high production resulting from two feeds. It is easily converted to plain work.

Novelty Figure Attachment

Write for illustration of fabric from Attachment R giving unlimited patterns in solid and hollow fancy figures in as many as six colors.

STANDARD-TRUMP BROS. MACHINE CO.

Main Office and Factory:
WILMINGTON,
Delaware

Southern Office:
1015 JAMES BUILDING,
Chattanooga, Tenn.

Kali Manufacturing Company, 1410 North Front St., Philadelphia, Pa., were demonstrating a new product this year, which was their material for boiling-off and dyeing three-fiber hosiery at the same time, practical experiments being conducted in the booth. Among the other products were "Kalizine" for chiffon hosiery, one bath boil-off oil for pure silk, and an extensive line of textile chemicals. J. A. Branegan, president, and S. G. Davenport, secretary-treasurer, were present, being assisted by J. J. Donlen and H. L. Nisser.

Kaumagraph Company, 350 West 31st St., New York City, demonstrated a complete line of transfer and packing materials, showing among them the "Indello" system for marking individual linens. H. A. Keech, Philadelphia representative, was in charge, and George Porgess, sales manager, of the New York office, was also in attendance.

P. C. Klingler, 111 Stewart Avenue, Riverside, N. J., was demonstrating a new type of stop-motion, invented by himself, which is now applicable to both Scott & Williams and Banner machines. The attachment is designed to reduce waste and imperfect work by preventing defects occurring from bad yarn or needle, skip in yarn change, broken latch, hook or butt, float in heel or toe, press-off, dropstitch in gore, etc. On all defects except load-ups, it was explained, the device is actuated by the latch of the needle; in case of a load-up the shank of the needle is forced out of line and this operates it. The principle of the device is contained in an actuating bar which sits in juxtaposition with the needle directly over the sinker. On the Banner machine, this bar, through a mechanism, operates the shifting of the belt on the pulley, while on the Scott & Williams machine it works in conjunction with the clutch pulley.

Liberty Coppersmithing Company, 1708 North Howard St., Philadelphia, Pa., were exhibiting Monel metal equipment, featuring especially for the knitting mills a Monel spoon, Monel pot-eyes, one-piece buckets and dippers, Monel screens, etc. A. J. Savarese and S. Watson were among the company's representatives at the exhibit.

Link-Belt Company, 810 South Michigan Ave., Chicago, exhibited a moving display of silent chain drives, and photographs of installations, among them being views of equipment installed in knitting mills over twenty years ago and still in operation. A number of other exhibitors at the show used Link-Belt chains for transmitting power to moving exhibits. H. D. Mitchell was in charge, with George Gansz and H. Burkholder assisting.

Mathieson Alkali Works, Inc., 250 Park Avenue, New York City, through their Philadelphia representatives, Baker & Gaffney, showed samples of their "Eagle Thistle" brands of textile chemicals, and liquid chlorine for bleaching.

The Merrow Machine Company, of Hartford, Conn., exhibited their equipment, with the Merrow Sales Corporation of New York and Philadelphia in charge. In addition to the usual types of high-speed overseaming and overedging machines, the company showed in operation models adapted for recent developments, particularly a machine for rayon. J. G. G. Merrow of the New York office was in direct charge of the exhibit. Paul Merrow, treasurer, was also present.

National Aniline & Chemical Company, 40 Rector St., New York City, maintained their usual attractive reception space, which displayed "National" dyes for the knitting trade. Dr. Louis J. Matos was in charge, as usual, and others present were A. A. Wood, E. S. Pemberton, George Gilbert, and W. H. Willard.

Philadelphia Drying Machinery Co., Philadelphia, Pa., were featuring in operation one of their new "Hurricane" automatic hosiery dryers, exhibited at this show for the first time. Among the features of this machine are that it can be arranged for two or three boarders, it has the adjustable toe feature, and the forms can be interchanged readily. Electric heat is used, and a one-horsepower motor employed for operation. It is built compactly, requiring a small amount of floor space. Another item displayed was the company's new improved electric boarding table, with the swivel feature used on the forms. Howard Morshead, southern representative, C. H. Neumann, G. A. Barth, and Furman Haynes were in attendance throughout the show.

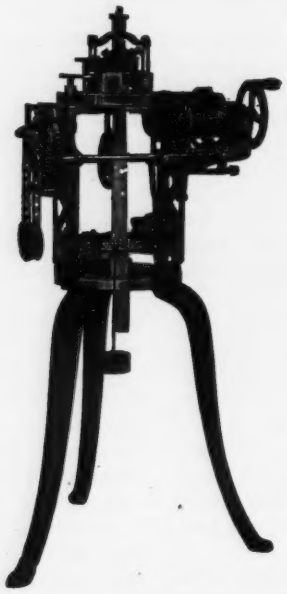
Proctor & Schwartz, Inc., Seventh Street and Tabor Road, Philadelphia, were located in their customary space near the main entrance. A working demonstration of the Proctor automatic hosiery boarding, drying and stripping machine was made. This machine, it was explained, is built in four models, Model D being the one on exhibit. It accommodates two operators for high-speed boarding, only one of whom need be a skilled boarder. The helper starts the boarding operation by picking the stockings up from the tray and pulling them on the forms, the boarder completing the operation by straightening and smoothing each stocking by hand into its proper position on the board. A special feature demonstrated was a recently patented device to insure good, smooth tops on all-silk chiffon stockings. Charles T. Griffith, manager of the hosiery dryer department, was in charge, assisted by Messrs. Tiers, Dennison and Keener and others.

Scott & Williams, Inc., 366 Broadway, New York City, had thirteen of their hosiery knitting machines in operation, including a 260-needle, 3¾-inch Model K; a 280-needle, 3½-inch Model K; a 300-needle, 3½-inch K; a 220-needle, 3-inch K; a 108-needle, 3¼-inch R I type on plaited silk work; a 160-needle, 3¾-inch R I type on wool; a 132-needle, 3¼-inch R I type on reverse plaiting; four B-7 models on wool and silk half-hose; a 176-needle, 3¼-inch H H Model; and a 22-needle, 3¼-inch H H type. A Bradbury machine for making diamond fabric was included in this exhibit, as was a Scott & Williams 15-inch, 12-cut underwear body machine. Harry Swinglehurst, president, Frank Richardson, southern representative, F. F. Smith, and several other representatives of the company were in attendance during the week.

Standard-Coosa-Thatcher Company, Chattanooga, Tenn., maintained their usual reception space for friends and customers, also showing samples of their mercerized combed yarns. W. H. Thatcher, George Carney, W. C. Henderson, R. J. Mathewson and W. S. Lawson were among those representating the company at the show.

Standard-Trump Brothers Machine Company, Wilmington, Del., had in operation ten of their Standard H model hosiery knitting machines, and one Nye & Tredick bathing suit machine. The special feature was the patterns made on the machines with striping, fancy top and figure attachments. F. L. Thomas, vice-president, W. Frederick, C. H. Cord, Harold Housman, S. R. Shelmire, William Frederick, and H. S. McInnes, who is in charge of the recently opened Chattanooga office, were in attendance.

Tolhurst Machine Works, Troy, N. Y., featured a 48-inch, direct motor driven, automatic extractor. Repre-



Brinton Machines Are Used the World Over

WE take pride in the long list of well known knitting and manufacturing concerns that keep and use Brinton machines.

Today Brinton machines are known from coast to coast and in every country of the world that manufactures textiles. Their reputation has been built by over thirty years of ability to deliver utmost efficiency and keep operating costs in knitting to a minimum.

Whether you make hosiery, underwear, scarfs, sweaters, ribbed tops or fancies, there is a Brinton machine for your purpose. Made in sizes to fit particular requirements. Write for details on the line you are interested in.

H. BRINTON CO., Phila., Pa.

H. BRINTON INC.

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FOREIGN AGENTS

Great Britain and the continent: Wildt & Co., Ltd., Leicester, England

South America: Santiago Scotto, Moreno 1756, Casilla Correo 662, Buenos Aires, Argentine Republic

Australia: J. H. Butter & Co., Sydney, Melbourne

China and Japan: Elbrook, Inc., 51 Kiangse Road, Shanghai, China

sentatives were explaining the automatic timing feature by which the time desired for operation is set, the machine stopping automatically. Another machine shown was a 20-inch solid curb type, under-driven, with direct motor drive. Both machines were equipped with friction clutch drive, and latest guards and safety appliances. Wilmer C. Dutton, vice-president, Rodney K. Cheney, sales manager, and J. W. Bird were present.

Torrington Company, Torrington, Conn., maintained their usual comfortable reception space for friends and customers. A feature of the display of needles was the seal of the United States designed in Torrington needles. From the Torrington office, L. J. Ross, W. Bell, Henry Blake, W. Wiechard, and Messrs. Dunning and Brown were present, and the Philadelphia office was represented by L. R. Unruh, sales manager, and J. W. Sullivan.

Tubize Artificial Silk Company, 303 Fifth Avenue, New York City, had a reception space for friends and customers, Bertrand R. Clarke, vice-president, was a one-day visitor, and others present were Gerrit Duys, Howard Cappel and E. D. Bryan.

Universal Winding Company, 95 South Street, Boston, Mass., in addition to their rayon winding equipment, had in operation a high speed Model 60-GF winder on mercerized, gassed cotton yarn, running at a speed of 450 yards per minute, being equipped with the new self-threading device for facilitating speed on the part of the operator. Among the equipment for rayon were machines for winding it from skein to cone, and from skein and spools to filling cops and bobbins. F. H. Bishop, vice-president, A. I. Harvey, general agent, Frank J. Quinn, Philadelphia representative, Frederick Jackson, of Charlotte, Southern representative, and C. Hunter were among the company officials in attendance.

United States Rayon Corporation, 40 West 25th St., New York City, was a new exhibitor, displaying samples of their product in skein, cop, tube, cone, and spool form. Meyer Senor and Eli Gordon were among the company's representatives present.

Veeder Manufacturing Co., Hartford, Conn., were showing a moving display of a wide variety of recording devices for textile machinery. The booth was in charge of W. C. Waldo, with J. A. Gallagher and W. A. Larsen also in attendance.

The Viscose Company, Marcus Hook, Pa., had a number of representatives present from various offices, greeting visitors to their reception booth. G. L. Hamlen, H. H. Phillips, W. B. Benson, H. L. Dalton, C. C. Bassett, J. H. Hammes, and Messrs. Rose and Appleton were in attendance during the week.

Wickwire Spencer Steel Corp., 41 East 42nd St., New York City, were among the new exhibitors this year, featuring especially their line of napper wire and card clothing. A machine manufacturing the product was in operation on slow motion. Also in the booth was a display showing the processes of manufacturing card wire and clothing from the mine through to the finished product, this company, it was explained, being the only card wire manufacturers controlling the operations from the mine through to the finishing processes. Jay R. Worsfold, sales manager, card clothing department, was in charge of the booth, being assisted by C. E. Foster, P. M. Macklin and George Watson.

Wilcox & Gibbs Sewing Machine Company, 658 Broadway, New York City, featured their new "Feldlock" machine, which, it was pointed out, is particularly adaptable for tubular seaming on shirts, pajamas, nainsook and woven underwear, etc. The "Flatlock" machine was in operation on rayon, as were the overlock and shell scalloping equipment. G. M. Lewis, of the Troy office, was in charge, being assisted in the demonstrations by Misses Fitzpatrick, McLaughlin, Lellerin, and McCrystal. C. Spencer, C. Dunthorn, Charles Colt and F. Frenz were also in attendance.

Wildman Manufacturing Company, Norristown, Pa., were present with their customary operating exhibit. Among the machines in operation were the following: ribbed bathing suit machine, rayon fabric machine; fancy rayon fabric machine for patterns; Jacquard type machine; four-color striper; spring needle hosiery machine, and another fancy type machine. K. Howie, general manager, D. C. Bellas, J. J. Brennan, F. E. Paul, and E. S. Kennedy were in attendance during the week.

Jacques Wolf & Co., Passaic, N. J., had an attractive booth in which they were displaying their line of chemicals for textile use, and showing samples upon which their materals had been used, emphasizing rayon fabric finishing. A case showing samples of discharge printing was of especial interest. Dr. Alfred Pfister, president of the company, was present during the week, and others in attendance were F. J. Henckel, Philadelphia, A. J. Royce, field manager, R. S. Griffith and Miss D. R. Warr.

Among the Knitting Mills.

G. H. Tilton Company are reported to be making extensive improvements to the Tilton, N. H., mill of the company.

J. W. Busiel & Co., Laconia, N. H., are installing a new laboratory, and the placing of the equipment in the new dyehouse is well under way.

Nolde & Horst Company, of Reading, Pa., are reported to have bought seven acres of land at Womelsdorf, Pa., to accomodate a large and up-to-date factory building. Surveyors are already at work on the property.

Herbert Hosiery Mills, of Conshohocken, Pa., have purchased the Norristown, Pa., plant of Lewis E. Taubel, according to reports. This will add about a thousand machines to the producing capacity of the Herbert mills.

McKinney Hosiery Co., Inc., Henderson, N. C., have just begun operations. They are manufacturing about 100 dozen pairs of women's hosiery at present, but expect to increase their output to 500 dozen pairs a day within six months. A dyeing and finishing plant will be installed within the near future.

Williamsburg Knitting Mill Co., Williamsburg, Ky., have purchased machinery for the establishment of a new dyeing and finishing department in their plant. They manufacture men's and ladies' hose.

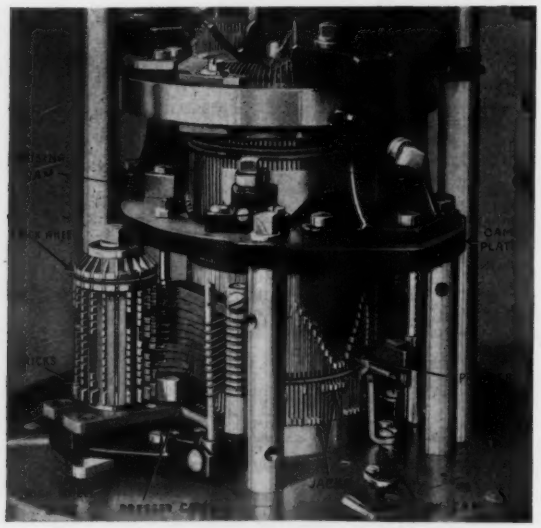
Nashville Knitting Co., Nashville, Tenn., which was rerently organized, has now begun operations, making men's silk half-hose.

Hudson Silk Hosiery Co., Union City, N. J., have arranged to move their entire plant equipment to Charlotte, N. C. Arrangements have been made for a building, and part of the machinery is being installed.

The New Brinton Fancy Machine.

A new type of knitting machine for producing fancy patterns has been designed by the H. Brinton Company, 3700 Kensington Avenue, Philadelphia, Pa. A number of these machines, which incorporate features heretofore not adapted to circular machines and which produce a variety of patterns by the Jacquard trick wheel method, were exhibited at the Knitting Arts Exhibition and created an unusual amount of interest.

So far the machines are of the sinker type and make fancy tops primarily; however, the company is working out the principles on the rib and other types made by them. In the sinker machine, the accompanying illustration of which shows the features of the new principle, the cylinder is the regular Brinton sinker cylinder, raised to provide for the new mechanism, and has the slots cut deeper. In each needle slot is a needle, which occupies



the same relative position as formerly; and a jack and presser which are in the same slots in the lower part of the cylinder. It will be noted that in its normal position, the jack butt extends beyond the surface of the cylinder, riding over the jack cam. The pressers have ten butts, one only being used ordinarily, with the others knocked off, so they can be arranged to operate on different needles as desired.

The trick wheel is filled with readily changeable inserted tricks, each with ten butts, all removable, leaving only those desired. The trick butts selected press the presser cams into the cylinder, these pressing the butts of the presser into the needle slot, and this in turn presses the butt on the jack into the slot, preventing this jack from going over the jack cam, so that any needles can be made to knit or not to knit as desired.

The jack, when it rises, pushes its needles to a tuck position, which puts the needle butt in the path of the raising cam, which raises the needle to the regular knitting height. If, as stated, the butt of the jack is pressed into the slot, it does not ride over the jack cam, failing to raise the needle which of course does not knit on this feed.

It is stated that all of the butts on the trick can be used or all removed, or any combiantion used, and the pressers can be arranged in any manner, giving an ununusually wide variety of possible combinations.

The smaller machines exhibited were of the two-feed type, so that the needles knitting on one feed fail to act on the opposite feed and vice versa. On larger sizes, it is stated, four, six and eight feeds can be used. A four-color yarn changer, giving a range of colors, is used on each feed.

Standard Trump Brothers Machine Co., of Wilmington, Del., have opened a southern office at 1015 James Building, Chattanooga, Tenn., in charge of H. S. McInnes, who will be in more direct position to render services to the users of the company's machines in the southern territory.

Lockwood, Greene & Company, 24 Federal Street, Boston, Mass., have mailed to knit goods manufacturers throughout the United States a booklet on "Knitting Mills," an interesting publication which is a careful analysis of the problems presented to the knitting manufacturer who is confronted with the building of a new plant or the revamping of an old one. The booklet is illustrated with views of various modern knitting establishments, either new plants or additions on which this organization has rendered their engineering service; and a comprehensive outline of various features of plant construction which must be considered, such as building sites, building types, number of stories, column spacing, department and machinery arrangement, dye houses, power plants, lighting, heating and ventilating, etc. The booklet is available to interested parties upon request.

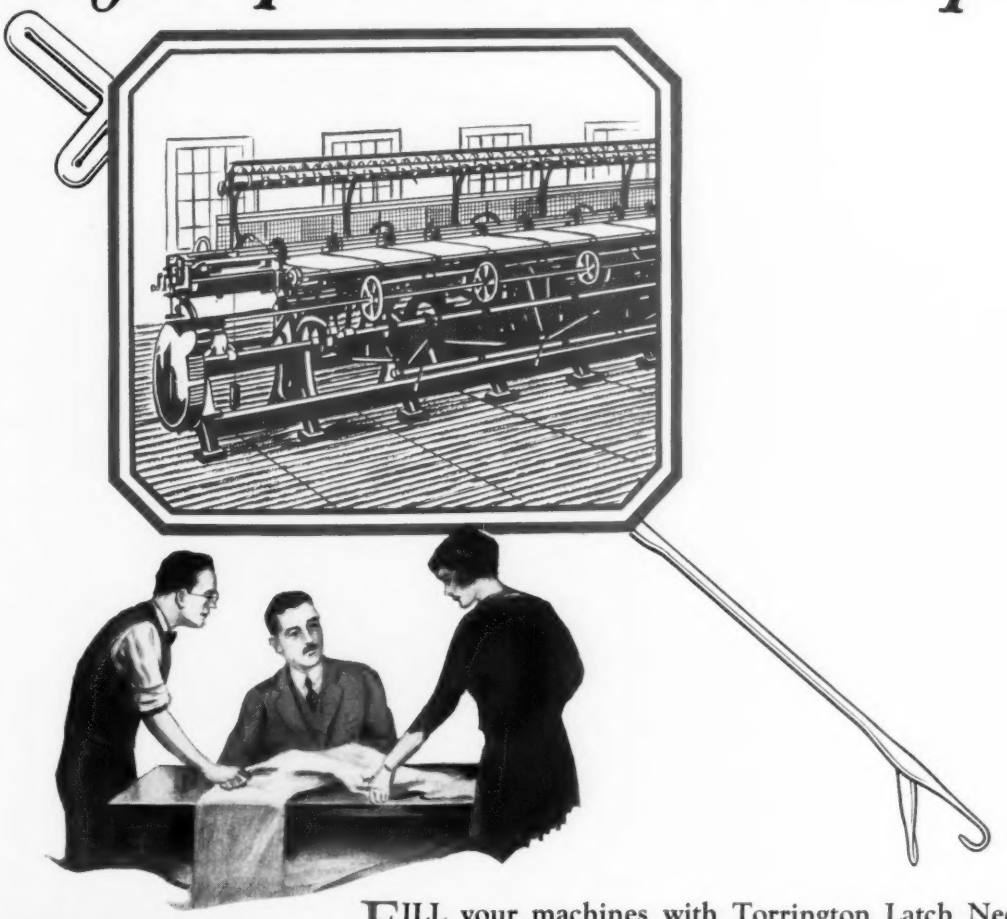
The Dubied Machinery Co. has just supplied the Lowell Textile School with a new model G flat knitting machine. This machine is of the 24 inch needle bed size, equipped with a half long carriage and two thread carriers. Single lock cams of the cardigan type are used. The front needle bed racks 4 needles.

This machine has five needles per inch in each bed and is especially valuable as an addition to the knitting instruction equipment. It will be used particularly for such articles as scarfs, caps, and sweaters. Other machines of the flat type now in the knitting department are three Lamb machines and three Grosser machines, including a jacquard and a purl machine.

Sanymetal Products Co., 1711 Urbana Road, Cleveland, Ohio, are distributing a booklet completely covering the range of metal partitions and allied products manufactured by them. The material consists mainly of specification on the typical installations of "Sanymetal" equipment for toilet partitions, dressing rooms, showers, office and shop partitions, etc.

The 1926 edition of the "Textile Manufacturer Year Book" has been issued, the present issue containing a comprehensive section on jute, in addition to the other departments, which have been brought up to date. Another new feature is a section on cotton waste spinning, and tables and diagrams showing weekly price movements of cotton. Emmett & Co., Ltd., 65 King Street, Manchester, England, are the publishers, and the price is three shillings six pence per copy.

Put your production "on the carpet"



FILL your machines with Torrington Latch Needles. Then hold an on-the-spot conference to check results.

You will immediately note that the quality of your production is better—that an increase of first quality knitting eliminates the waste of frequent "seconds". The foreman tells you that more goods are turned out per working hour . . . the operators confirm the favorable verdict because they are not slowed up by yarn and needle breakage.

These results swell profits. Torrington Latch Needles give them to you through their remarkable uniformity . . . fine temper . . . the smoothness that insures good work . . . the establishment of design and construction standards that best meet the requirements of knitting.

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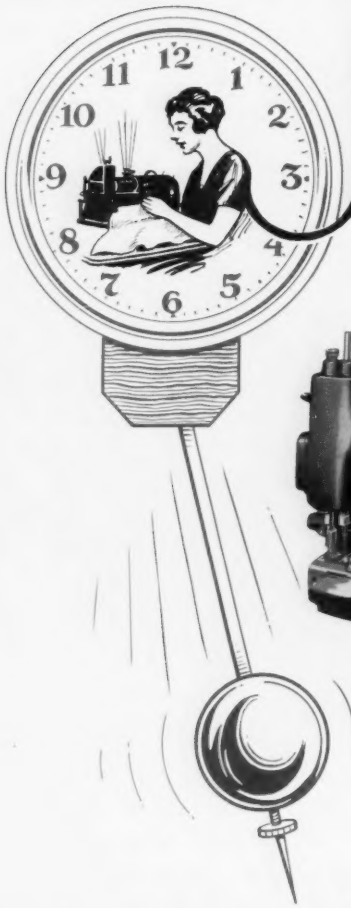
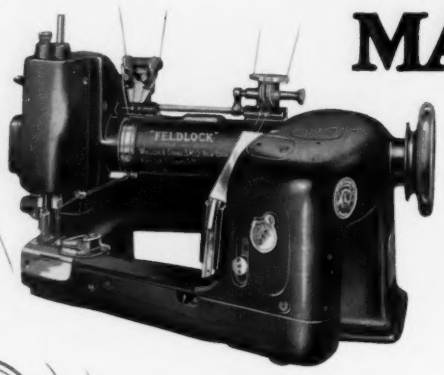


Save your operatives' Time

The FELDLOCK

Reg. U.S. Pat. Off.

MACHINE



Sews *off* the arm

MAKES a two needle lapped fell seam. There is no loss of time in recovering the garment after it is seamed. Operated easily; adjustments made quickly.

Now over 80 factories in the United States use the Feldlock, made to the high standard of all Willcox & Gibbs machines.

A demonstration of the Feldlock will be interesting and valuable. Ask our nearest Branch.

Do you manufacture any of these goods? Then use the Feldlock Machine—it is the most profitable for TUBULAR SEAMING.

Shirts, pajamas, blouses, children's clothing, petticoats, nightgowns, sleepers, house dresses, work shirts, nainsook woven underwear, sheet seaming, and in dye and bleaching houses.

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We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Spring Beard Vs. Latch Needle Product.

EDITOR COTTON:

As an underwear manufacturer, I should be much interested in reading some discussion by those who have had experience on the following questions. I suggest that you publish it in "Knitting Kinks," and that those who can give you any information on it, write you so the readers of that department may get their opinions.

What is the comparative cost of products made on the spring beard and latch needle machines? What are the relative advantages of each?

I understand, of course, that the spring beard latch needle is used more for the finer grades of underwear, and yet I am wondering if it would not be possible to produce on a latch needle machine a 10-cut, 12-pound men's union suit and get just as good a product as on the spring needle machine. Any information as to the comparative cost, merits and advantages of the two machines would be sincerely appreciated, and I believe other readers of "Knitting Kinks" would like to get this information also.

CONTRIBUTOR NO. 3412.

Drop Stitches on the Looper Line.

EDITOR COTTON:

In response to "Contributor No. 5432," who states that he is having trouble with drop stitches on the looper line on the Banner machine, my opinion would be that probably he has too sharp a drop on the cam on the fashion wheel coming out of the toe, or else he may be trying to make too much of a looper course there, which would make this trouble possible. Also, if his needles are not straight the machine would sometimes have a tendency to do this, where he does make a big drop.

The sinker cap should be set right, or if the sinkers are not pushed in hard enough this trouble will result. The yarn lever in the heel might be too long, which would close the latch. CONTRIBUTOR NO. 2345.

EDITOR COTTON:

The trouble of drop stitches in the looper line on Banner machines, about which "Contributor No. 5432" asks in "Knitting Kinks," is, in my opinion, not caused from the needle latches or from the stitch cam. So long as the stitch cam makes a good gore it is all right. But according to my experience, this trouble results from the loose course cam, which I believe he will find is too low. This cam should be set up even with the fashion wheel to which it connects. He will find this cam on the inside of the fashion wheel just as the machine goes off of the toe, and when this cam is too low, it allows the needles to drop too low, and the looping round is loose anyway, which causes the needles to shed the stitch ,resulting in drop stitches anywhere around the looping course. C. M. (GA.).

EDITOR COTTON:

In answer to "Contributor No. 5432," here are some of the things I have found will help in stopping a Banner machine from dropping a stitch at the looping line. In referring to the various parts, I have given the number listed in the machine catalog for convenience.

The loose course cam, No. 292, might be set too low to make a large looper loose course.

See that carrier ring, No. 29, is polished until there are no rough places in it.

If the carrier ring is set too high or too far from the needles at the mouthpiece, this trouble will result.

The long butt needles must have plenty of friction on them so they will not slip down and bump on the cams, causing the latches to fly up.

In lowering cam No. 292 to get a large looper loose course, the leg tension will bump on cam No. 275, causing the needles to jump and throwing up the latches. Run the machine over this change by hand and see if this tension bumps; if it does, take a file and slant the front end of the cam so the change will go over smoothly without a jump. CONTRIBUTOR NO. 2901.

EDITOR COTTON:

This is in answer to "Contributor No. 5432," who asked for the causes of drop stitches on the looper line on Banner machines.

When a Banner machine on mercerized half-hose or any hose drops stitches at the looper line, my opinion is that it is caused by the closing of the latch needle, and may be started at the throat plate. The latch ring should be perfectly smooth, and the setting even all around the needles. Care should be taken that the picker spring is not too

tight, but has just enough spring to lift and drop the needles clear. My suggestion to the man having the trouble mentioned would be as follows:

Turn the machine by hand while on heel or toe, and watch the needles as they come up through the sinkers, and, as they lift, and see that the latches are open, and that there is enough sinker pressure to hold the stitch firmly.

The needle, upon raising, then should be assisted in opening the latch all the way, by the bottom edge of the latch ring. Notice this and see if it does. Have sufficient tension or spring on the needles so they will not be too free in the needle slots, and see that the needles are in direct center of the sinkers, and that the sinkers ride freely.

BOB (CANADA).

Keeping an Extra Jack Dial on Hand.

EDITOR COTTON:

On Scott & Williams Model K machines, where jack dials are used, I have found it a big time-saver to keep an extra jack dial filled with jacks to be used as needed.

This saves time in making up the jacks when they are desired. The side of the jack or transfer bit that is good is put into a box, being later sorted out to be used again.

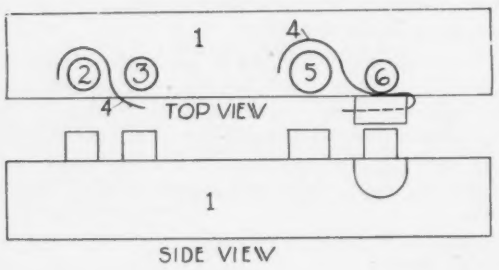
CONTRIBUTOR NO. 4338.

Making Loose Course Wires for Ribbers.

EDITOR COTTON:

Probably some of the readers of "Knitting Kinks" would be interested in knowing how to construct a jig for making loose course wires for ribbers. It will be noted from the illustration herewith that 1 represents a piece of ½-inch key steel about four or five inches long; 2 and 3 are 3/16-inch pins that are screwed into number 1. Number 4 is a piece of 1/16-inch steel wire used in making the loose course wires. Numbers 5 and 6 are pins screwed into the steel block. Number 5 is ¼ of an inch, while No. 6 is 3/16 of an inch in diameter. Number 7 is a steel block fastened onto the side of the key steel.

To make the loose course wire fasten the template in a vise; bend the wire around pins 2 and 3 as shown; then take the wire from pins 2 and 3 and carry it to pins 5 and



6 and bring the wire around the block 7 on the under side. The block should be filed a little rounding on the bottom, as shown.

It should be borne in mind that after one of the wires has been made it must be put on the machine and set with the needles. Care should be taken not to let the wire touch the cylinder as it raises the needles. After the loose course has been made and it is shown that some of the stitches are pulled or broken it will be seen then that the wire is too high and only a pair of pliers is needed to lower the wire. The same thing would apply if the loose course is not large enough and then the wire should be raised.

There are rib men who try to please every knitter in the house, and by doing so make lots of waste. The best thing to do is to have a standard and stick to it just as nearly as possible. The smaller the loose course the better the goods look after being finished. W. H. H. (GA.)

Gore Puckers at the Corners.

EDITOR COTTON:

We have a problem here in our hosiery plant that I want to submit to the readers of your magazine for any light some of them may be able to throw on the subject.

Very frequently, after our ladies' mercerized hosiery is boarded, there will be what we call "ears" right in the corners of the gore where it is looped. Now, I personally know that these goods are looped correctly and exact, so I cannot understand what might be causing these unsightly puckers. Furthermore, we use the wide hosiery form in boarding, instead of the narrow. I could see where these "ears" might come from using a form too narrow, but with the wide Paramount form, the solution is beyond me.

It is probable that some of your readers have found a way to get around these "ears." If so, I would be glad to know about it. CONTRIBUTOR NO. 53.

Inspecting Underwear Fabric.

EDITOR COTTON:

As you know, in a number of cloth weaving mills it is the custom to run the goods over what is called a "perch" for an inspection and examination after weaving, but this practice is not general in knitted underwear plants. However, we understand that some knitting mills have some such method of inspecting the cloth after it is taken from the knitting machine. At the present time we give it only an inspection at the folder, and since we, like other underwear mills, oftentimes carry a stock of goods on hand before it reaches the dyehouse or other finishing process, it might be weeks before a more thorough examination is given it; and then it is difficult to trace back the source of any defects and put the responsibility on the right party. The examination at the folder can at best be but a hurried one.

We are contemplating the installation of a system of inspection on a "perch" or some similar arrangement immediately after the goods leave the knitting machine. We believe that by having an inspector run the goods more or less slowly between him and the light, a good many defects that would otherwise pass unnoticed will be caught. This will allow us to fix the responsibility right away. Furthermore, our plan is to print, on the back of the regular ticket which goes with the goods through the mill after it leaves the knitting machine, a form on which the perch inspector can mark how many holes, drop-stitches, grease and oil marks, needle lines, etc., he finds in each roll. When this gets further along, the cutter, for example, can tell by looking at this ticket what kind of a roll he has. Furthermore, with this system we can see another advantage: If the perch inspector marks 13 holes from the knitting machine, and later on the inspector finds 35 holes, the argument as to whether the holes are from the knitting machine or the napper, or elsewhere, is automatically settled, don't you see?

In connection with this idea, we are interested to learn from the mills who have tried this system what sort of a perch they use, and at what speed the goods should be run over it. In other words, how long should it take to inspect carefully 300 rolls of fabric weighing 65 pounds each? If any of the mills have added any form on their knitting tickets, we should appreciate their sending a sample of it along with their answer to "Knitting Kinks."

We shall be much interested in any information you can secure on this subject. CONTRIBUTOR NO. 3428.

Drop Stitches in the Gore on Standard F.

EDITOR COTTON:

The question of drop stitches in the gore, first on one side and then on the other, on Standard F machines, was asked in April COTTON by "T. H. R. (Tenn.)".

In answering this, my first suggestion would be, starting at the beginning, to see that the take-up is working properly. This man said he had gone over the take-up, but I have found that it is absolutely necessary that the take-up work freely. Furthermore, it should be remembered that this can be adjusted by the little pivots on which it works.

In going on with suggestions, I might first give the correct conditions which should prevail. I know that many fixers seem to feel that the original adjustments on the machine are wrong to start with, while I have found it best to try to hold as nearly as possible the adjustments and settings made by the machine builders. The yarn carrier must be set at the proper height; it must be set as close to the needles as possible without catching the yarn. "T. H. R." says he has adjusted the yarn carrier, and this reminds me that many men, when they have some trouble of this sort, are inclined to bend the carrier, and there is no successful adjustment possible while it is in this condition. It should sit so it will have just enough space between the needles and yarn carrier so it will take up freely. Sometimes men will put a new guide on the back, and, in soldering it on, fail to get all the solder off on the inside. I would suggest also that he take a piece of very fine crocus cloth and polish the hole in the yarn carrier.

CONTRIBUTOR NO. 2826.

EDITOR COTTON:

In answer to the question asked by "T. H. R." in April COTTON, I am setting forth the causes and remedies for gore cutting, taking for granted that the needles are o. k. He states that he has made several adjustments, to no avail, I just wonder if he has examined the yarn locks? The accompanying sketch may help him regarding the locks. These locks play a very important part. They must hold the yarn just enough to keep the take-up from going up too fast, and the spring on take-up must not be too strong. If very little tension is on the spring and the locks fail to hold the yarn, then he may know they are too light. That may sound peculiar, but it is a fact, and he can heavy them up by dropping some solder on the locks, as at *A* and *B*, Fig. 1.

If, after making them heavier with solder, they still fit as in Fig. 2, which is wrong, then take a screwdriver and open up the slot in the piece shown in Fig. 3 at the point *C* until the locks fit up to each other as in Fig. 1.

After making sure this adjustment is correct, then get the machine on the heel and look on the back side and see if the needle butts are drawn in just out of the way of the cam ring. In other words, the needle butts should be pulled in flush with the cylinder bars, and no more. To pull the needles in further has a tendency to spring the needles outward at the hook, and this will cause the yarn carrier to rub the needles that are out of motion on the back side.

"T. H. R." speaks of a loose or slack yarn, and this very thing will cause the take-up to not function properly, and consequently make a hole.

I would strongly advise "T. H. R" to look about the needles first. I don't undertake to tell a man how to set his yarn carrier, but he can do this, I am sure. Having satisfied himself that the yarn carrier is set right, then

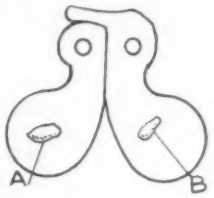


FIG. 1

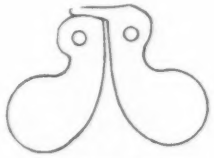


FIG. 2

remove the sinker cap and lay it on a flat surface—I use the top of my tool box. Then take the fingers and pull upward on the yarn sinkers, and if there is very much play, next remove the clamp ring and carry it to a lathe and have a small facing taken off of it. Care must be taken not to

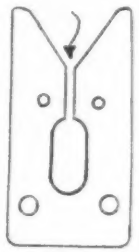


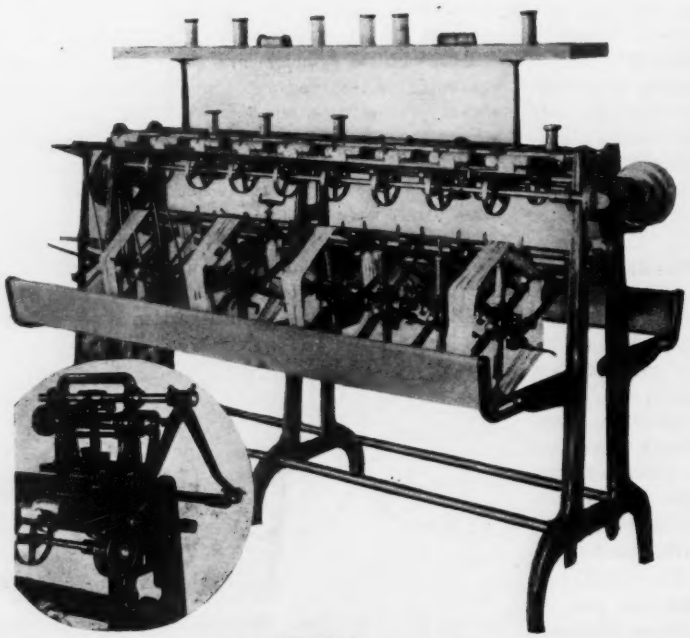
FIG. 3

cut off too much. Replace the clamp ring and then use the same procedure as previously tried, and if more play shows take more off of the clamp ring. Get that play out of the sinkers.

Try this, and if results are not satisfactory make a cylinder band and put on the sinker ring. This will keep them pulled in at all times. Don't stop at this now, but take a look at the stitch cams and remove them from the ring, and if the points are now wider than the width of the cylinder bar, grind them enough to make the point just the width of the needle bars.

This man needs a lever gauge. He should next remove the sinker cap and cylinder and casing in order to have a good view of the levers. Make sure first there is no needle butts in them. Now take a small hammer and tap the lever bed on the gore levers just enough to tighten them up a bit. Next put new washers on the quarter plates and then put the cylinder in and see if it lines up with the needles. While at it, fix it right, and I believe the suggestions already offered will solve the problem. However, a piece of fabric would help in the solution of the problem.

I would like to hear from this problem after "T. H. R." tries out my suggestions. W. H. H. (GA.).



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ATWOOD

SILK THROWING MACHINERY

EDITOR COTTON:

I note the question of "T. H. R. (Tenn)," who says his Standard F machines are causing drop stitches in the gore, first on one side and then on the other. It is pretty hard to tell just what the trouble is likely to be without a sample of his hose containing this defect, so I will list a number of the things which in my experience and opinion might be doing this for him, and he can check over them and let us know if any of the suggestions helped him.

First, the take-up spring may have too much tension on it and pull the yarn through the yarn lock so hard that the yarn lock does not hold. It may be also that the take-up spring is too weak. There could be a slight defect in the yarn lock, or the yarn being pinched because of the yarn carrier being too close to the needles. Or, if the carrier is too far away from the needles, when the first active needles draw down, the yarn is not laid under the hooks of the needles far enough to keep the first needles to draw down from missing the yarn. The yarn carrier also could be set too low.

I have also seen slack yarn not taken up by the take-up sweep caused by the hole in the yarn carrier being rough. This should be smoothed out with fine emery cloth. It may be that his trouble is caused by sinkers not coming out fast enough when the needles are rising. This would cause the sinkers to push in the slack yarn some before the take-up sweep could take the slack yarn up out of the way.

I would also suggest that he put in a new yarn carrier, or take a yarn carrier off of another machine that is doing good work and try it on the machine on which he is having this trouble. I have found that it is a good idea to change parts giving trouble from a machine that is running fairly well. In this way a man can generally tell what parts are giving the trouble. N. W. (N. C.).

EDITOR COTTON:

I note the trouble "T. H. R. (Tenn.)" is having with his Standard F machines dropping stitches in the gore.

There are so many causes for gore cutting that it is really a hard proposition to help anyone by writing.

"T. H. R." does not state whether these drop stitches occur in the same place every time or not. If so, then there are needle levers that need attention. If he does not find a tight lever that binds the needle butt, then he should watch carefully and see if the needles are getting the proper "throw." Levers that do not function properly will cause trouble.

Again, if "T. H. R" is using mercerized or a hard twisted yarn of any description, he will need more tension than he would on soft yarns; otherwise, gore cutting will be the result.

A worn yarn lock, and, of course, worn cones, or poorly fitted cones, are other causes for drop stitches or gore cutting. "T. H. R." says it looks as though the take-up was not working properly, which causes me to think that worn yarn locks, or lack of tension on yarn, is the trouble.

N. (CALIF.).

EDITOR COTTON:

"T. H. R. (Tenn.)" asks for a discussion in "Knitting Kinks" of the probable causes for drop stitches in the gore on Standard F machines.

Among other things that may cause this trouble are kinky bars in the cylinder, which, by pinching the butt of the needle would cause the needle to go *out* too far as it is moved by the lever.

Cylinders that are very old might cause the difficulty by having the needle slots worn in so deep that it is difficult to get the sinker in far enough to hold the stitch.

Another cause for this difficulty would be having the yarn carrier too close to the needles, rubbing the needles and causing them to rise up, thereby missing the yarn as it comes from the carrier.

Uneven stitch cams might cause the trouble by making a long stitch and then a short stitch. In such a case, the long stitch will often drop off the needle.

I trust "T. H. R." will tell us through "Knitting Kinks" just what he finds to be the trouble. D. K. M. (VA.).

Trouble With a Double Sole Clipper.

EDITOR COTTON:

I never see anything published in your kinks department about the double-sole clipper, and I wonder if this is because nobody ever has any trouble with it? I will be frank to say that for a while we had a little difficulty with ours, but now that we have overcome it, I thought I would pass the idea along to the other mill men for whatever it may be worth to them.

Our trouble came about in the spring. We found that in clipping out silk, a different spring would be used than when on mercerized work. In other words, I learned that when running silk work I should use a spring that comes all the way down and touches the bottom of the machine, while on mercerized work I should have a weaker spring that comes half-way down. So I ordered an extra set of springs, and change these whenever we change from silk to mercerized, or back from mercerized to silk.

I would be glad to read of any simple kinks like this that the readers of this department will tell us about, for they are interesting to me. B. R. S. (Ga.).

Putting in An Anti-Runback on Ribbers.

EDITOR COTTON:

In "Knitting Kinks," in the December issue of COTTON, page 183, you published a letter from me telling about what I do to make a tuck stitch or "anti-runback" on a ribber just a few stitches ahead of the loose course to prevent drop-stitches running back in case the knitter fails to get every point on the transfer ring. The readers will recall that I said this is done by taking out the second screw on the pattern wheel ahead of the lug that makes the loose course, which, as I pointed out, causes the pawl to drop down at this point, letting the bob pin drop down also; this knocking the dial needles half-way in, producing the tuck stitch.

Since you published this letter, I have been asked what kind of ribber I use. The man asking the question stated that he had tried it out on a Wildman machine, but could not get it to work.

For the benefit of this man, and others who read the article, I will state that we have the Brinton ribber, and it was on this kind of equipment that I made this "anti-runback." However, I have used Wildman machines, and I can see no reason why it would not work out well on this equipment also. My suggestion on the Wildman machine would be to remove the lug on the pattern wheel, which

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will drop the bob pin, which will strike the bottom tuck cam. This will let the dial needles go half-way in one round and come out. This should solve the problem and prevent the stitches from running through the "anti-runback."

If anyone tries this out on either a Brinton or a Wildman machine, I should like to know about it. As I said in my previous letter, it not only reduces seconds for us, but also improves the appearance of the stocking.

B. R. S. (Ga.).

Ranges of Weights and Counts of Yarn.

EDITOR COTTON:

As underwear manufacturers, we should like to get, through "Knitting Kinks," any information available from other knitters in the field on the following point:

On different cut machines, the manufacturers furnish us with tables which they state give the ranges of the weights and the counts of yarn suitable for each cut machine. We find that it is possible to use these, but we just barely can get by. As we get into the coarser cut machines and at the same time the finer pieces of goods, the more likely it is to make sleazy work.

To put a question of a definite basis, with a 10-cut machine, what is the lightest fabric that can be made without having sleazy work? Give the counts of the yarn to be used. Is it possible to make a 10-pound union suit on this machine, and if so, how much elasticity will the garment have?

If any underwear mill readers of "Knitting Kinks" can give us some good information on this, or, better still, are able to furnish a practical, reliable table showing the ranges of yarn counts and weights for use in the different cut machines, it will be greatly appreciated by us, and, I believe, by other underwear men.

CONTRIBUTOR No. 3425.

Problems in Hosiery Dyeing.

EDITOR COTTON:

I think it would be interesting if you could start in your "Knitting Kinks" department some good discussion by mill men with reference to the comparative merits of the different types of machines to use in hosiery dyeing; that is, the paddle type or the rotary machine. I would like to see this proposition discussed by your readers.

To start things off, I will give my ideas. On silk work, I personaly prefer the rotary type machine, because it eliminates the trouble of bagging the goods, and I can keep the sizes separated all right. In the case of a mis-match, it is not necesary to pull out and shake up. And I find that I can get just as even dyeing, and also I think I can run longer without damage to the goods in case of "shading."

In fact, about the only product on which I would prefer to use the paddle type machine is for half-hose. They will run loose without tangling, and we do not have to bag them, and we can always arrange to run one size in a run.

If some of your readers who have had experience with both or one type would give their opinions, and tell of some of the difficulties encountered with each, as well as the reasons for preferring one kind or the other, I believe we could get some good discussion opened up. Or if somebody would like to ask some questions as to how to solve dyeing problems, I think some of the others as well as myself would be glad to try to help out if they will outline just the difficulties they are having.

H. H. S. (TENN.).

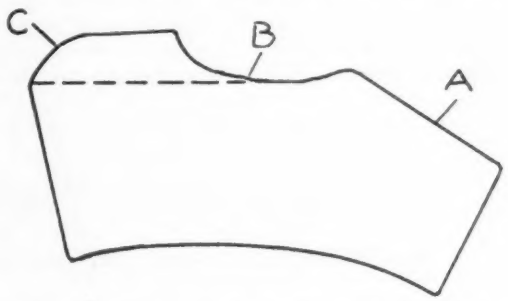
Making a Tuck Stitch on the Ribber to Prevent Drop Stitches.

EDITOR COTTON:

I notice in the December issue of COTTON, in "Knitting Kinks," you carried a letter from "B. R. S. (Ga.)" with reference to making a tuck stitch on the ribber to prevent drop stitches—what he called an "anti-runback."

I was interested in this because we have been doing something similar for quite a while. From his directions, I figure he uses the Brinton ribber, while we have the Wildman machine at our plant, and it was on this machine that I made the change.

The accompanying sketch of a Wildman cam will be used to illustrate how to do this stunt on that machine. As you know, the guide rod for the welt pin ordinarily goes



up the side marked *A*, then across *B*, while it holds the dial needles half way in, going next over *C* and back down again for the next revolution.

All I did was to grind the point *C* down to the place indicated by the dotted line, so that it would be on the same level with the point *B*. Thus, instead of knocking the dial needles half way in for one time and all the way in for the second, it forces them half way in for the two revolutions, producing the tuck stitch.

I would be glad to see descriptions of other "kinks" of this kind that are helping the different knitting mills.

H. F. (TENN.).

Among the color cards recently issued by the Newport Chemical Works, Inc., Passaic, N. J., are those covering Newport Direct Brown RXN, especially for dyeing brown cotton, rayon and silk, natural or weighted; and Newport Direct Brown XR, which, it is stated, has slow exhausting and level dyeing qualities with good fastness to light, and is suitable for dyeing cotton in all stages of manufacture either as a self-shade or in combination.

The second edition of the trade standards adopted by The Compressed Air Society, 90 West Street, New York City, has just been issued. For convenient reference, a number of tables relating to compressed air have been incorporated, and there has also been added a chapter of general information relating to commercial practices in the industry.

The Yarn Market

Philadelphia, Pa., April 15, 1926.

Probably the outstanding feature of the yarn market discussions of the past month is whether or not the southern spinners mean to curtail production when orders go below cost. This was the sentiment expressed at the annual meeting of the Southern Yarn Spinners' Association, held in Charlottle on March 30.

In his report for the year, Secretary Green reviewed the market conditions of the past 12 months, and pointed out that, "If curtailment advocated by the association had been more generally practiced earlier in the year, a higher level of prices and more profitable operations would have prevailed."

It was the general understanding at the meeting that curtailment was a certainty, at least to some extent, and a resolution was adopted recommending that the mills operate only on orders, and accept no busines except at remunerative prices. A canvas of the mills present showed that they are not accumulating stocks of yarns and indeed were determined to avoid such a contingency.

In Philadelphia, many buyers took this action to be merely a gesture, and expressions of doubt as to the mills sticking to any such program were heard. Some of these buyers were trying hard to kid themselves into the belief that raw cotton was bound to take a drop, and yarn prices would, perforce, be obliged to follow. However, other factors pointed out that the cotton market was an unstable foundation on which to base anything, let alone future trends in the prices of another commodity. They recalled the tempestuous rains that have fallen in Louisiana and Texas, greatly delaying planting, and in many instances doing great damage to the land.

While some investigation during the second week in April disclosed some mills that have made no sales since January because the prices at which the business was offered was below cost, it also disclosed that many spinners were sold ahead on orders at satisfactory prices much farther than had been realized.

At the rate of operations then being conducted they seemed to be supplied with business for from six to eight weeks as an average.

Considering the market detail for a moment, the waiting attitude on the part of the buyers that has characterized their movements for some time continued in force. If they needed the yarns, they bought and paid the price, after a little shopping around, perhaps, but their purchases covered only actual needs—a hand-to-mouth proposition.

There was evident at this period a distinct tendency to await the Knitting Arts Exhibition, where buyers and sellers of hosiery and underwear yarns always congregate for a few days of discussion. Discussion was right. The buyers declined to do little else. While the feeling was not bearish, and while some small lots of spot yarn changed hands, the actual sales as a result of the show were disappointing, one large factor declaring, however, that the ground had been prepared for the future in a way that would result in orders later on.

There was no decline in carded yarn prices during this period, it being the first week since the middle of February when such was not the case. Combed yarn rates had not been so fortunate, although both combed and mercerized suffered comparatively small setbacks.

The end of March found weaving yarns selling in small lots but with a steady demand. The fear of a drop in raw cotton evidently prevented more determined action.

The second week in April saw some reduction in prices. Carded, knitting and weaving yarns declined from 1 to 1 1/2 cents a pound. Boston prices did not follow Philadelphia, and the third week in April found this same condition obtaining. In fact, the low ratings on carded in Philadelphia were believed to be largely nominal and the result of compromise prices on the part of sellers who were trying to get the extremes as represented by spinners and users to meet.

At the close, as this is written, quotations, while low, are steady. Following are today's quotations on the Philadelphia market:

Single Skeins.

4s to 8s	28½	10s	30
12s	30½	14s	31
16s	31½	20s	32½ @33
24s	35	26s	36½
30s	39		

Single Warps.

8s	30	10s	30½
12s	31	14s	31½
16s	32	20s	33@34
26s	38	30s	40
40s	50		

Carpet and Upholstery Yarn in Skeins.

8s-3-4 hard white warp twist	28½
5s and 9s tinged tube	26½
8s 3-4 hard twist waste	24½

Two-Ply Skeins.

8s	29	10s	30½
12s	31	14s	31½
16s	32	20s	33½
24s	37	26s	38
30s	40	40s	48

Two-Ply Warps.

8s	30	10s	31
12s	31½	14s	32
16s	32½	20s	34
24s	37	26s	38
30s	40	40s	51

Frame Spun Carded Yarn on Cones.

8s	29½	10s	30
12s	30½	14s	31
16s	31½	18s	32
20s	33	22s	33½
24s	35	26s	36
30s	37½	40s	49
30s double carded	39	30-tying-in	37

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	49	20s	50
24s	52	30s	53
40s	60 @62	50s	66@68
60s	75 @77	70s	85@88
80s	1.00@1.05		

Mule Spun Carded Yarn on Cones.

10s	35	12s	36
14s	37	16s	38
18s	39	20s	40
24s	41	26s	42
30s	43	40s	52

Mule Spun Combed Peeler Yarn on Cones.

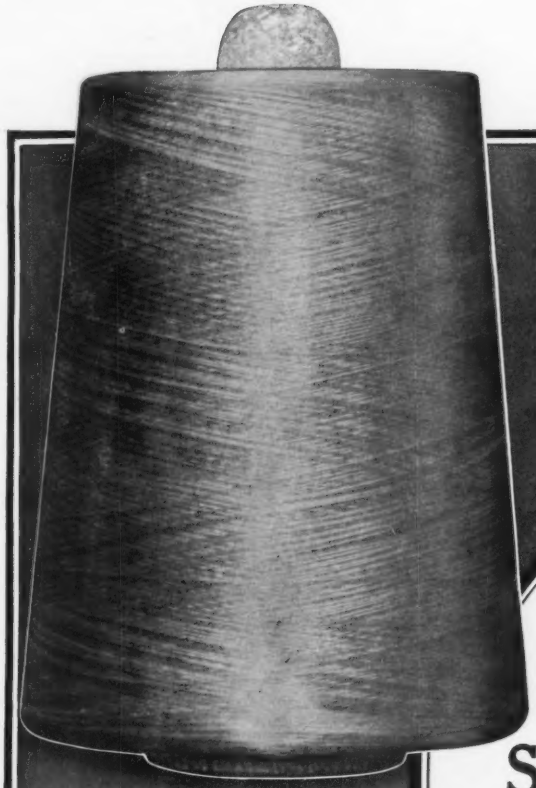
10s	44	12s	45
14s	46	16s	47
18s	48	20s	49
22s	50	26s	53
28s	54	30s	55
36s	57	38s	60
40s	65		

J. E. BUCHANNAN has resigned as overseer of No. 2 carding at the Loray plant of the Manville-Jenckes Company, Gastonia, N. C., to become general overseer of carding at the Lane Cotton Mills, New Orleans, La.

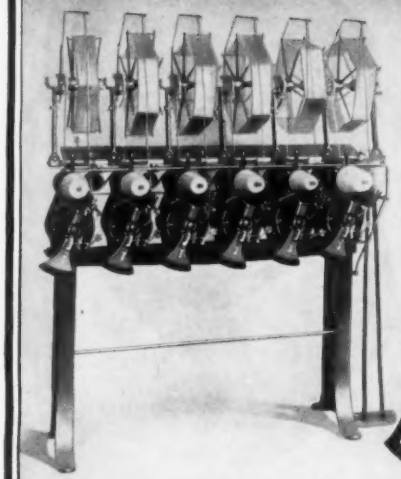
IRA B. HAYES, who recently resigned as superintendent of the American Cotton Mills No. 2, Bessemer City, N. C., has accepted a similar position at the Savona Manufacturing Company, Charlottle, N. C.

H. M. SANDERS has been promoted to overseer carding at the Cochran Cotton Mills, Cochran, Ga.

J. L. BEAVER, who has been in the jacquard weaving room at the Pomona Mills, Greensboro, N. C., has accepted the position of overseer of weaving at the Pilot Division of the Consolidated Textile Corp., Raleigh, N. C.



Weight of Contents
One Pound



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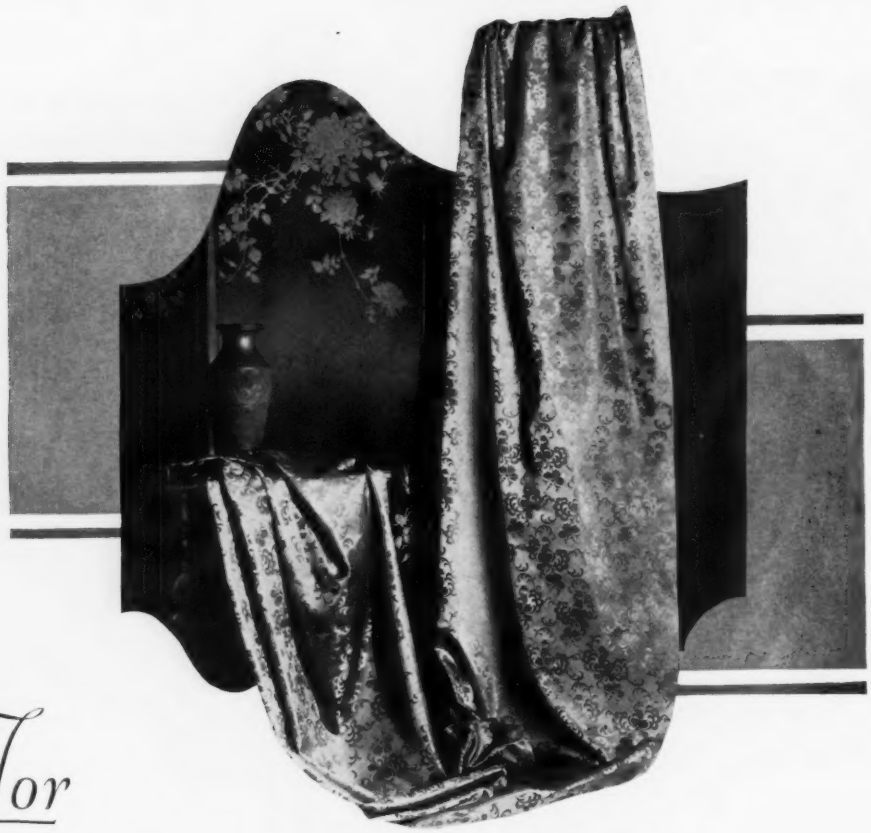

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The Knit Goods Market

Monthly fluctuations in the productions of hosiery, the shipments and new business as shown in reports of manufacturers representing around 65 per cent of aggregate output are so slight, comparatively, that it must be apparent there is no material decrease in distribution, notwithstanding there is much unemployment due to strikes and the foreign situation. Primary market conditions showed little improvement in April over those for the preceding months of this year. But hosiery continues the better item in textile products as a whole.

There has been in the last several months some curtailment of output, but mill reports indicate manufacturers' stocks are heavier than in the corresponding period of 1925. Contradictions in the statistics may be due in part to the fact that many manufacturers do not supply reports—glad to get information as to others, but not willing to make contributions to it. There is therefore always an unknown quantity with which to reckon, and the average distributor takes to himself the advantage of a doubt.

Fear of a shrinkage in values is making merchants ultra cautious in contracting for future, and there is an all-round disposition to squeeze manufacturers' prices for even spot goods. Manufacturers, ambitious to maintain their stage of production and hold working organizations intact, have, in several distinctive lines of hosiery, on more than one occasion yielded to buyers. Prices therefore are irregular, and that appears to be about the chief complaint heard in the more important markets.

One conclusion to be drawn from the conditions as variously reported by manufacturers and jobbers is that for a long pull, there is nothing quite so dependable as conservative lines and nothing so erratic and speculative as novelties. Fancy hose may make, and, for a time, sustain a market, and almost invariably it gets into a rut where dreams of manufacturers become much disturbed. Novelties made for activity in half-hose and no other was quite so active and interesting. They still are a profitable proposition for certain mills, but are losing out for others, while all interests are speculating on the prospect of fancy patterns holding sway for another entire season. And now numbers of manufacturers of juvenile sports hosiery are beginning to experience what has been perplexing makers of fancy half-hose for some time.

For some time, until toward the end of last year, boys' and misses' sports hose of seven-eighths length ranked second to women's full-fashioned silk in stability and market activity. Manufacturers who made changes in their patterns more than twice a year were few. Now those who do not bring out at least six changes during a year are even fewer—three times as many new ones to make competition keener, and three times as many old ones, which, in instances, must be sacrificed. Even at that, numbers of mills are being operated to capacity, but the management may be feeling a drag somewhere beneath the surface.

"The childrens' hosiery game is pretty well shot to pieces," said an executive of an organization that may be said to be more favorably situated than most of them. "The market is being adversely affected by the very policies which have been its salvation," he continued—too frequent style change. The one difficulty, he pointed out, is that if a jobber have a stock of some particular line that is not moving well he reduces the price, thereby establishing a lower level of value in the mind of the retailer. The latter expects to buy of the next new line at about the prices which he paid for one that was passing out, and the jobber looks for a revision accordingly.

Manufacturers find that only by restricting production of some innovation that makes a market for itself can he maintain his price through an unfilled demand. In striving to that end, a few succeed and many fail, and the failures of one period may be the successes in the next, and vice versa. But it is a perplexing situation for even the successes.

It seems a certainty that, as far as relates to volume, the full length one-time staple children's ribbed stocking has been bowled out indefinitely by the popularity of the fancy roll top and sports effect generally. This fad in juvenile dress is begining to yield, in moderate degree, to silk hose for young misses of ages, say, 11 to 15 years, aping their elders, just making their entree into juvenile social life. An order for 4,000 dozens of misses' carded ribs was offered last month, at prices too low to be attractive.

Several manufacturers who some months ago began exploiting silk hosiery for young misses say their sales are fast increasing, and merchants tell of a broadening interest. Machinery is fast being adapted to the knitting of a smaller leg, on a foot of regular sizes beginning with 8, and the young miss already is expressing preference for silk-to-top. A well-known manufacturer of the sports stocking says he has no doubt that silk for young misses will so grow in favor and that near future production of the roll-top pattern stocking will have to be reduced by considerable to avert a flooding of the market. A misses silk-to-top latch needle stocking from a mill in Reading crosses the counter at a dollar a pair. This probably will be the popular price for some time.

With silk for women still the dominating item in hosiery, and distribution seemingly running about neck-and-neck with production, manufacturers, in the main, have been able to maintain their list prices notwithstanding the weakness of the raw silk market and the general disposition of jobbers and retailers to do the bulk of their business on stocks in the mills. Where there have been reductions they were slight, in the nature of a voluntary adjustment. If there have been cuts in competition for business they are known to only buyers and sellers. One thing that manufacturers and distributors do not want is for retailers to force a price slump. Silk hosiery prices are occasioning no complaint from the consuming public, so far as is known, except in instances where dealers substitute with cheapened goods and exact prices for those of established standards.

The executive of a full-fashioned hosiery organization which but a month ago got its plant in operation is no less enthusiastic over the success of the enterprise than when the $250,000 worth of equipment was contracted for, but admits there is probability of an eventual large overproduction, and he repeats what many have said, that there will be witnessed a survival of the fittest. His definition of the fit is the maker of hosiery of high standards adhered to in season and out of season. Numbers of manufacturers,

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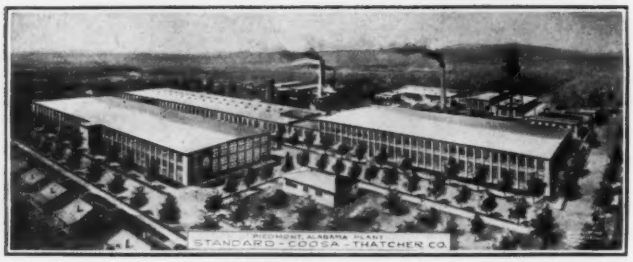

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it is pointed out, who have been doing business with jobbers for many years, have fallen into the error of making a stocking to fit a jobbers notion of price and profit for himself. These, it is held, would be the first to be hurt by the demoralization that would follow in the wake of an oversupplied market. The manufacturer of the best stocking that can be built for the money, says the executive in question, "would survive without a struggle."

Standard full-fashioned silk-to-top chiffon hosiery from each of a number of mills is selling in the average woman's shop and department store at $1.95 a pair, a price as popular for this type of stocking as is $1.00 for good circular knit. Samples taken promiscuously by an expert buyer from the lines of two mills showed, upon careful inspection, a very great difference in construction. One was as nearly perfect, down to the minutest detail, as it would be possible to knit and finish a stocking. The other was lacking in certain minor refinements, not essential to service, perhaps, but important as a talking point. The better stocking is priced 50 cents a dozen more than the other, and both mills are sold well ahead. The buyer referred to gives the higher price stocking preference, and says that in the event of overproduction of full-fashioned lines it would survive price competition while the other were yielding. This conforms to the opinion of most manufacturers who have been sounded on their views as to where excess output would make the first dents.

Will the trade witness a revival of demand for 39-gauge silk hosiery? is a question that sometimes is discussed. Some interests appear to believe there will be a return to service weight hose, in which, it is held, the coarser gauge would be a better merchandising proposition than the 42, which at the moment is perhaps the more popular gauge, especially for chiffon hose. A manufacturer whose plant comprises 42-gauge machines exclusively has knitted 12-strand hose for demonstrating a proposal and says he is ready to swing from chiffons to service weight at any time, without change in his equipment. There is seen some tendency to semi-chiffons, but prospects for any momentous call for the former service weights do not seem assuring to owners of 39-gauge machines.

Hosiery of silk and rayon in combinations, originally three strands of silk on one thread of 150 denier rayon, seems to have lost much of its prestige as a serviceable dollar seller, since prices became irregular several months ago more than affording a starting point of trading. As one mill after another joined the procession headed for lower values, construction standards were, in many instances, lowered, and eventually buyers were offered goods on a basis that made them suspicious of recourse to cheapening, so that it became not easy to move really meritorious hosiery at even shaded prices. There appeared to be a glut of women's silk-and-rayon hose, except of the branded lines of well-known manufacturers, which appear to have maintained their former status.

Like silk and rayon in combination, all-rayon boot hosiery is receiving less attention, due, for one reason, to the good values to be had in low price tram silk. It is believed the higher priced rayon stocking is the harder hit by the lower price seamless-knit silk, but that the cheaper grades, costing the wearer little more than a mercerized stocking, will still have comparatively plain sailing. But jobbers are regarded certain to operate in a very cautious way so long as there exists the suspicion rayon producers will

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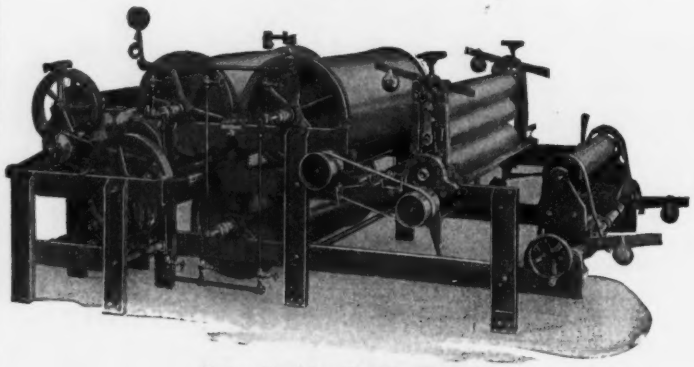

Sizing Machine No. 81—Type M

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UNLESS specially adapted to handle artificial silk, sizing machines fail to meet the conditions created by this particular product.

The Johnson Sizing Machine is in every way suited to handle artificial and spun silk warps. The large drying cylinders, the regulated even tension, the carefully adjusted quetsch, improved warp take-up, and many other features make it so.

This machine has been proven the fastest Sizing Machine made while its success in increasing production in weaving is remarkable. Our claims are not "manufacturer's statements" but plain facts based on actual operation.

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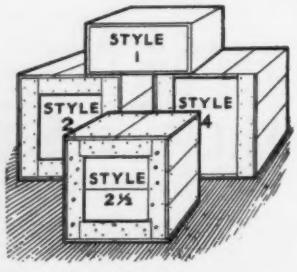
—made of best grade North Carolina pine, planed smooth. Cut from thoroughly dried lumber to prevent excessive weight. Before you buy compare ours with others as to quality and price.



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ADVERTISING is an economy and cuts the cost of selling, making lower prices or better goods possible without sacrifice of the seller's profit.

reduce their prices, particularly since one mill is accepting 121/2 cents a dozen less than the recent list.

"Form-fashioned" silk-and-rayon hosiery, manufactured by the Chipman interests and by a few mills under royalty, is having the benefit of effective free advertising. The stocking, comprising a full-fashioned foot on a seamless-knit leg, is sold under the advertised brand form-fashioned, which, it is alleged in a complaint filed with the Federal Trade Commission by, supposedly, a Better Business Bureau, is deceptive. Testimony in support of this contention has been taken in several northern cities, full-fashioned makers and a few jobbers being examined.

Jobber testimony that the form-fashioned stocking is a leading seller seemed to make the complainants the more determined to put it out of the running under that label. The respondents' witnesses, at present writing, were yet to be heard. The case is attracting much attention in full-fashioned circles, and there are intimations that when it has been disposed of a manufacturer who is topping a circular-knit mercerized hem on a flat knitted silk leg will be called upon to show by what right he sells it as a full-fashioned stocking.

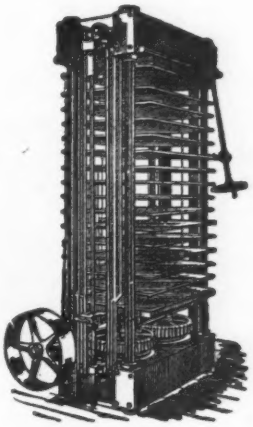
Importers and certain retailers are very kindly disposed toward lisle hosiery for women, and keep chiffon lisle especially in the spotlight. It is stated in women's shops where lisle is being exploited that it appeals to an exclusive clientele which looks upon silk as commonplace. Most retailers, particularly those having a silk following, say the lisle is gaining no ground and is not likely to; that comparatively few sales are made on the purchaser's initiative. There will be some business in imported lisle hosiery because it is imported, if for no other reason, but not sufficient volume to alarm American manufacturers of silk hosiery. Sports lisle will stand the better chance of getting over strong.

If reports from approximately 300 manufacturing establishments are accepted as an index, women are wearing more silk hosiery than is commonly accredited to them. Statistics for February indicate that production of all classes of women's cotton hosiery, including mercerized, represented 18 per cent of the combined output of cotton, silk, rayon, and silk in mixture with fibers other than wool.

It is pretty difficult to determine from statistics what is going into men's half-hose, for novelties cover a multitude of combinations of fiber as well as patterns. Deliveries of striped socks from some of the larger mills are seldom abreast of schedule, according to jobbers. As leading manufacturers continue to bring out a new pattern every 30 days or so, jobbers buy sparingly, and usually underbuy. Repeat orders for a given pattern are seldom filled, it is complained. There is an active market for wanted lines and a surplus of lines that are not readily saleable.

While the volume of business is in goods to retail at a half dollar, there is seen in some metropolitan sections an improving outlet for exclusive patterns which go over the counter at one dollar. There is promise of some new and fetching stripes for Summer, and appealing patterns in silk-and-wool for Fall are on the market. Where wool hose has been bought, it has been on an unusually conservative basis, a large part of the jobbing trade having yet to place initial contracts.

New low prices for men's full mercerized half-hose, 220-needle, with double sole and high spliced heel, came out in a transaction of last month, when a sale of a considerable



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FOR
Hosiery and Underwear
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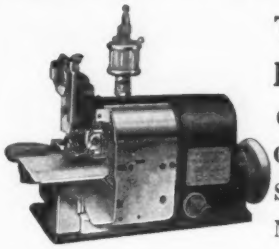

THE MERROW HIGH SPEED OVERSEAMING, OVEREDGING AND SHELL STITCH MACHINES

FOR FINISHING ALL KINDS OF KNITTED AND WOVEN FABRICS.

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FOR QUALITY AND QUANTITY PRODUCTION AT LOW OPERATING COST
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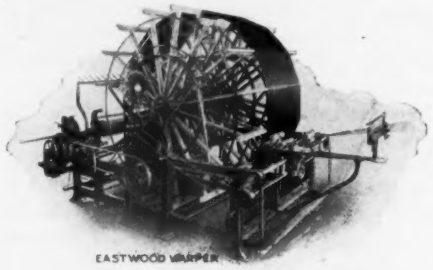

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QUILLERS with or without copping attachment

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RAYON SIZING FOR WARP

SKEIN OR SLASHER

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WASOL M-21

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Neutrasol Products Company

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quantity was made at slightly under $1.60 a dozen. A southern manufacturer booked a contract for around 25,000 dozens, at a price said to be very close, on the upper side, to $1.57 1/2. According to a buyer for a large jobbing house, like socks were obtainable from an interior Pennsylvania manufacturer at a substantial shading from $1.62 1/2.

Since the early part of the year there has been much idleness among mills in the Schuylkill valley making half-hose and women's seamless silk. There is better inquiry for high-grade silk half-hose in plain colors—for one reason, fewer mills are making silk socks. A Pennsylvania manufacturer selling to jobbers is getting $4.25 a dozen for 12-strand socks, which implies they will cross the counter at 75 cents minimum. A 20-strand stocking, from a direct-to-retailer manufacturer, is put out as a $1.50 seller. Comparing with the corresponding period of 1925, the stage of silk half-hose production is not being maintained, both full-fashioned and seamless showing a somewhat sharp decline.

As two of the better known direct-to-retailer manufacturers of silk hosiery were the first to come out with open announcements of reductions of 25 to 50 cents a dozen in their prices, some interests say they can foresee lively competition blossoming as between mills selling to jobbers and those distributing through retailers. Jobbers have been losing considerable business to the mills selling direct, which themselves are large buyers of full-fashioned silk. It is estimated that the business of manufacturers selling to retailers and of chain stores and catalog houses is sufficient to keep certain of the very large factories running to capacity, regardless of what happens to prices. Julius Kayser & Co., extensive manufacturers selling to retailers exclusively, buy considerable hosiery from Philadelphia and Reading mills. As the company has reduced its prices and made announcement to that effect to its trade, it is reasoned that it has exacted or will exact a revision from the manufacturer of whom it is a patron, and that concessions will have to be made to other manufacturers who also buy to sell to retailers. From all of which it is a logical conclusion the jobbers who have been holding out for revisions will not have procrastinated in vain.

By the first of June, it is expected by important traders, there will have been happenings in the primary market which may go far toward determining whether production of full-fashioned silk has or has not been carried to excess. The organized full-fashioned knitters last month were unusually active in striving to prevent overtime work, and the operation of two machines by one knitter, with the idea, it is assumed, of supplying jobs for more members, as there is an increasing army of non-union operatives, and open shop plants are finding it easier to fill the places of employees dismissed for activity in trying to organize such establishments. Manufacturers say they realize their operating cost would be increased if they were forced to observe organization rules. It is their notion cost will have to be reduced as selling prices are revised.

The Dexdale Hosiery Mills, Lansdale, Pa., selling to retailers, last month established a retail store of its own in Philadelphia, which, it was stated by the management, is intended primarily to advertise Dexdale hosiery, carried by a number of independent retail stores. The company maintains similar establishments in Boston and New York, and probably will open another in Philadelphia. These

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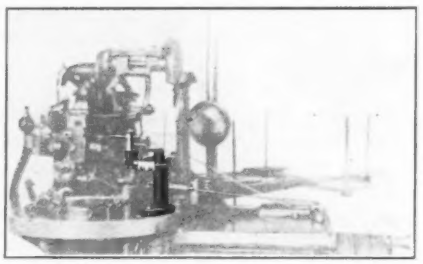

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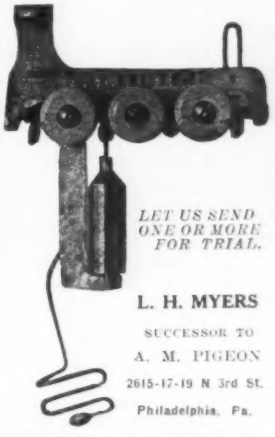

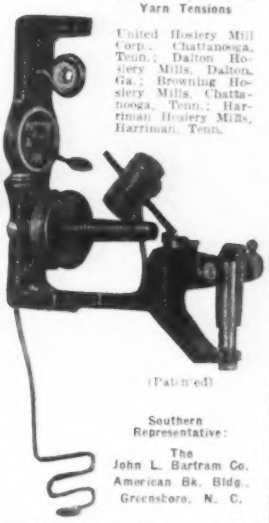

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stores are in the shopping centers frequented by the better trade, and, as they distribute only Dexdale hosiery, will, it is thought, have little difficulty in maintaining prices for themselves as well as the independent stores.

The Dexdale, in operating stores of its own, is but pursuing the policy of the John B. Stetson Co., hats, and it is believed by observers that other hosiery mills will establish restricted chains while continuing to supply retailers. It seems probable that hosiery merchandising this year will undergo little less revision than prices, and that the jobber who does not function will see more of his business in stockings slipping.

Underwear.

What little news comes out of the underwear primary markets this spring contains nothing that might be utilized for putting a touch of life into a dull picture. There are bright spots, of course, but they are so few that they stand out conspicuously as proving that isolated cases may not be a safe criterion.

Knitted underwear for men has been depressed by two unrelated elements—low temperatures and high favor in which nainsook athletic suits are held. But even the sporty cut-and-sewed sleeveless and short garments have not been immune from the adverse influence of unseasonal weather. Duplicate business as a whole slowed down last month. For well advertised brands strongly set in the trade there was a fair amount of repeat orders, according to several manufacturers. But nainsooks seems to have the middle of the road, and balbriggans are, in some instances, crowding the sides. Ribbed suits are also feeling the effect of man's acceptance of the proposal the woven is as comfortable as the knitted, notwithstanding it must be worn baggy, and when soggy with perspiration clings to the body like ivy to a worm fence. Acknowledgement of the better absorptive character of the knitted is seen in the fact it is in strong favor for the athletic shirt to be worn as a companion piece to the jean running drawers.

Jobbers as a body still have a great deal of Spring and Summer underwear to buy, according to the executives of some of the leading eastern distributing houses. Some have not sold their original contracts, it is stated, retailers this year being exceptionally slow with their commitments. Retailers say their business has been crippled by men economizing in their underwear by clinging to their heavyweights for which the temperature may have supplied the motive. The merchants therefore are placing few repeat orders and jobbers are not seriously pushing for them, in the circumstances.

It appears the higher price knitted lightweights and the novelty nainsook garments have suffered least from the general slump in cotton underwear. Rayon-striped athletic suits seem to be gaining in favor among men devoting much time to outdoor sports, and whose undergarments are on display when they disrobe for the game and dress after the bath. It is then that the dainty stripes and touch of the distingue appeals to man's vanity.

Rayon underwear for women still must be viewed as in the experimental stage. Testimony concerning it is so conflicting as to force the conclusion it has disappointed some wearers and merchants. And it is one of the peculiarities of the distribution of rayon underwear that some shops having an exclusive clientele express much satisfaction with it, while other stores whose patrons are women of the "smart set" or "flapper" class, rather than of the dignified well-to-do element, do not have it in stock. The deduction is that one shop sells rayon to the wealthy while another sells silk to the girl and woman of moderate circumstances. Some praise it, and as many condemn it. The consumer is the jury, and the final verdict may not be announced for some time. It is confusing rather than illuminating that a large department store which once took rayon underwear out of its lines has reinstated it, and the management expresses enthusiasm over it, while one of the better known manufacturers of silk and rayon underwear and lingerie has discontinued use of the latter fiber entirely. Meanwhile cotton underwear for women is receiving the benefit of the doubt.

Most of the Pennsylvania manufacturers who installed finer gauge machinery and in other respects adapted their plants to producing finer cotton vests, drawers and union suits have had a fairly active season. Some of them said in April that they had been operating to capacity for months, and, on occasions, working overtime, but had about caught up with orders. It was intimated there would be some closing down, unless new business came along, for it is the intention of the manufacturers to make up nothing for stock.

The Bestok Underwear Mill was enlarged last year, and since has been on full-time schedules. The company, at Tower City, Pa., shipped out more women's cotton underwear in March and April than in the first three months of 1925, it was stated by an executive. Certain mills in Reading, and practically all in Hamburg, another Pennsylvania underwear center, also improved their position this year. Three, scattered, might be mentioned which are offering their equipment for sale, under a decision to discontinue business.

Due to the fickleness of cotton and weather, the market for men's heavyweights represents the depths of the slump in underwear. Business, always quiet in Spring, is especially so this year, and the more optimistic do not look for much improvement until the trade is more at ease on the outlook as to cotton and spinners have determined whether there shall be curtailment of yarn output commensurate with the indicated decreased consumption.

Sweaters.

Some little improvement is sweaters, more particularly in men's sports lines and novelty coats, is noted. But the market is devoid of snap, and buying for fall is on a very restricted basis. In fact, retailers are operating with unusual caution in spring and summer coats. It is pretty well settled in the minds of retailers that woman will want few sweaters for Summer, and it remains to be shown, distributors say, whether man will use his usual Fall and Winter quota. All interests are proceeding very conservatively and there is much idle sweater machinery, while some bathing suit mills are working two shifts of operatives.

Cameron Machine Company, 61 Poplar Street, Brooklyn, N. Y., have issued a 48-page illustrated booklet on the subject of their strip cutting and winding machinery. This company produces machinery for cutting fabrics, paper, rubber compositions, felt, foils, etc., into strips and winding them onto rolls, and the booklet treats of their "Camachine" high speed and specialty machines for this purpose. In addition to the consideration of the machinery, an interesting description of the processing of slitting and roll-winding is included in the booklet, which may be secured upon request to the company.